

San Onofre Nuclear Generating Station, Units 2&3

Updated Final Safety Analysis Report

Revised April 2011

Chapter 3.0: Design of Structures, Components, Equipment, and Systems

Section 3.2 – Classification of Structures, Components, and Systems

Section 3.2.1 – Seismic Classification

Section 3.2.2 – System Quality Group Classifications

Section 3.2.3 – Quality Assurance Program Classifications

ENVIRONMENTAL DESIGN OF MECHANICAL
AND ELECTRICAL EQUIPMENT

3. DESIGN OF STRUCTURES, COMPONENTS, EQUIPMENT, AND SYSTEMS

3.2 CLASSIFICATION OF STRUCTURES, COMPONENTS, AND SYSTEMS

3.2.1 SEISMIC CLASSIFICATION

General Design Criterion 2 of Appendix A to 10CFR50, General Design Criteria for Nuclear Power Plants, and Appendix A to 10CFR100, Seismic and Geologic Siting Criteria for Nuclear Power Plants, require that nuclear power plant structures, components, and systems important to safety be designed to withstand the effects of earthquakes without loss of capability to perform their safety functions.

Appendix 3.2A provides a listing of structures, components, and systems and identifies those that are Seismic Category I.

The seismic classifications are consistent with the recommendations of NRC Regulatory Guide 1.29 as delineated in Appendix 3A (with the clarification noted for reactor coolant pump bearing oil and cooling systems).

3.2.2 SYSTEM QUALITY GROUP CLASSIFICATIONS

Appendix 3.2A identifies systems, and portions of systems, important to safety and lists industry codes and standards applicable to pressure-retaining components and associated safety systems. The design, fabrication, inspection, and testing requirements for each classification provide the required degree of conservatism commensurate with the importance of the safety function to be performed.

Equipment quality group classifications, as defined by NRC Regulatory Guide 1.26, are indicated in Appendix 3.2A. The principal design and construction code or standard is also listed for each major structure, component, and system.

3.2.3 QUALITY ASSURANCE PROGRAM CLASSIFICATIONS

To fulfill the requirements of chapter 17, those items that fall under the Quality Assurance Program are identified in Appendix 3.2A.

Appendix 3.2A provides the quality classification of major plant structures, components, and systems. Four quality classes were established to identify the required quality control and quality assurance procedures for structures, components, and systems relative to their importance to the safety of the nuclear power system. As defined in Appendix 3.2A, those items designated as Quality Classes I, II, III and IV make up the Project Q-List used in development, review, approval, and control of the design of major plant structures, components, and systems. For Quality Class I and II items, the applicable requirements of 10CFR50, Appendix B, Quality

San Onofre 2&3 FSAR
Updated

ENVIRONMENTAL DESIGN OF MECHANICAL
AND ELECTRICAL EQUIPMENT

Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants, have been met to ensure the highest quality standards.

San Onofre 2&3 FSAR
Updated

3.2A. APPENDIX 3.2A

Q-LIST


The SONGS 2&3 Q-List is maintained as a controlled document under the SCE Quality Assurance Program.

This appendix contains the current Q-List revision. Because revisions to the Q-List may have occurred after the issuance of the UFSAR, please refer to the latest control copy of 90034.

<u>11</u>	<u>3/30/11</u>	<u>INCORPORATED ECNs D0001031, D0014042, & D0039707. Resolved NN 201379420.</u>	See SAP Work Flow	See SAP Work Flow
10	4/24/09	INCORPORATED ECNs A30067, A24866, A55428, A36200, A36652, A48981, AND A52359.	See SAP Work Flow	See SAP Work Flow
9	05/03/2007	INCORPORATED ECNs A24866, A36200 AND A36652.	See CDM file	See CDM file
8	05/02/05	INCORPORATED ECNs A10582, A10684, A11229, A12565, A13643, A13798, A14029, A14326, A17322, A19625, A20342, A21450, A22298, A26167, A27128, AND A34036.	See CDM file	See CDM file
7	05/25/01	INCORPORATED DCNs 51 THRU 58 AND MADE NON-TECHNICAL CHANGES.	See CDM file	See CDM file
6	09/16/99	INCORPORATED DCNs 43 THRU 50 AND MADE NON-TECHNICAL CHANGES.	See CDM file	See CDM file
5	02/03/98	SEE CDM FILE	See CDM file	See CDM file
4	01/03/96	SEE CDM FILE	See CDM file	See CDM file
3	06/13/94	SEE CDM FILE	See CDM file	See CDM file
2	01/08/93	SEE CDM FILE	See CDM file	See CDM file
1	02/13/90	SEE CDM FILE	See CDM file	See CDM file
0	06/26/86	ORIGINAL DOCUMENT ISSUE.	See CDM file	See CDM file
REV	DATE	DESCRIPTION	MADE/ CK'D	RE/FLS

NOTES:

- Any changes made to this title page or the attached document should be done on electronic file.
- This document exist in electronic (Word) format in SAP

	San Onofre Nuclear Generating Station	Quality Class I Units 2 & 3	
	Q - LIST CLASSIFICATION OF STRUCTURES SYSTEMS, AND COMPONENTS	Dwg. No: 90034	
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SAN ONOFRE NUCLEAR GENERATING STATION

UNITS 2 AND 3

Q-LIST

90034

Revision 11

March 2011

SAN ONOFRE NUCLEAR GENERATING STATION UNITS 2 AND 3

Q-LIST

90034

RECORD OF REVISIONS

Revision 0:	Original Document Issue (June 1986).
Revision 1:	Incorporates Addenda Nos. 1, 2, 4, 5, 7, 8, and 9 to 90034, Revision 0 (Note: Addenda Nos. 3 and 6 never issued); DCNs 1, 2, 3, and miscellaneous additions and clarifications.
Revision 2:	Incorporates DCNs 4 through 15 to 90034, Revision 1; Addenda No. 1 to 90034, Revision 1. DCNs 16 through 19 to 90034, Revision 1 not incorporated.
Revision 3:	Incorporates DCNs 16 through 27 to 90034; Q-List changes in accordance with MMP 2/3-6728.00SM, DCP 2/3-6751.00SM, and MMP 2&3-6855.00SC; includes various editorial and technical changes and additions; changes format from landscape to portrait; and swaps columns for Quality Class and Seismic Category such that Quality Class is listed first in table.
Revision 4:	Incorporates DCNs 28 through 34 to 90034, Q-List changes for resolution of Problem Review Report PRR-015-95, and other editorial/technical changes. The note added by DCN 33 is revised to more accurately define quality class break locations for the Perimeter Paging System. Old Footnote "ad" referring to Undiluted PASS Sample Cask should have been deleted by Revision 3; Revision 4 deletes Old Footnote "ad" and adds New Footnote "ad" for RCP Seal Heat Exchangers.
Revision 5:	Incorporates DCNs 35 through 42 to 90034. For DCN 40, the footnote designation was changed from "ar" to "ap" to reflect the next sequential footnote available. This revision removes the list of revisions from the cover page and incorporated a new "Record of Revisions" page. This revision includes a few editorial corrections. Revision 5 of this document was repaginated; therefore, most page numbers in the document are changed from Revision 4.
Revision 6:	Incorporates DCNs 43 through 50 to 90034. For DCN 45, footnote "ar" the wording was modified to make it applicable for both units. For DCN 47, the footnote designation was changed from "ar" to "as" to reflect the next sequential footnote available.
Revision 7:	Incorporated DCNs 55 through 58. For DCNs 51 and 52, the footnote designation was changed from "aq" to "at" to reflect the next sequential footnote available. For DCN 54, it is applicable for both units as originally intended by the originator.
Revision 8:	Incorporated ECNs A10582, A10684, A11229, A12565, A13643, A13798, A14029, A14326, A17322, A19625, A20342, A21450, A22298, A26167, A27128, and A34036.
Revision 9:	Incorporated ECNs A24866, A36200 and A36652.
Revision 10:	Incorporated ECNs A30067, A24866, A55428, A36200, A36652, A48981, and A52359.
Revision 11	<u>Incorporated ECNs D0001031, D0014042, D0039707. Revision 11 of this document was converted to Word format and repaginated; therefore, most page numbers in the document are changed from Revision 10.</u>

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CLASSIFICATION OF STRUCTURES, COMPONENTS, AND SYSTEMS

SEISMIC CLASSIFICATION

General Design Criterion 2 of Appendix A to 10CFR50, General Design Criteria for Nuclear Power Plants, and Appendix A to 10CFR100, Seismic and Geological Siting Criteria for Nuclear Power Plants, require that nuclear power plant structures, components and systems important to safety be designed to withstand the effects of earthquakes without loss of capability to perform their safety functions.

Definitions

A three-level system is used for seismic classification of plant structures, components and systems defined as follows:

A. Seismic Category I

Those structures, components, and systems designed to remain functional if a design basis earthquake (DBE) occurs. These plant features are those necessary to ensure: (1) the integrity of the reactor coolant pressure boundary, (2) the capability to shutdown the reactor and maintain it in a safe shutdown condition, or (3) the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures comparable to the guideline exposures of 10CFR100.

B. Seismic Category II

Those structures, components, and systems that are not Seismic Category I but whose limited damage could interrupt generation of power.

C. Seismic Category III

Those structures, components, and systems that are not Seismic Category I or II but whose failure could inconvenience normal plant operation

Seismic Category I structures, components and systems are designed to withstand the appropriate seismic loads, as discussed in SONGS 2/3 Updated Final Safety Analysis Report (UFSAR) Section 3.7 and other applicable loads without loss of function. Seismic Category I structures are sufficiently isolated or protected from Non-Seismic Category I structures to ensure that their integrity is maintained at all times.

Components (and their supporting structures) that are not Seismic Category I and whose collapse or failure could result in loss of safety function of Seismic Category I structures, equipment and systems through impact or flooding are checked to confirm their integrity against collapse or failure. These components and supporting structures are governed by Seismic Interaction II/I (SI II/I) or Seismic Interaction III/I (SI III/I) for Seismic Category II or Seismic Category III components and supporting structures, respectively, consistent with NRC Regulatory Guide [1.29](#) Position C.2.

The Seismic Category I structures, components and systems are the only structures, components and systems designed to withstand the operating basis earthquake (OBE). The OBE and DBE are defined in UFSAR Section 3.7.

Seismic Category II structures, systems, and equipment are designed in accordance with Southern California Edison's standard practice. The design of structures, systems, and equipment follow special requirements where Southern California Edison desires a level of conservatism above normal applicable codes. Most structures, systems, and equipment in this classification are designed using an equivalent static seismic load of 0.20g horizontally and 0.13g vertically, applied simultaneously, with no increase in allowable stress levels. However, under no circumstances will structures, systems, and equipment be designed less restrictively than that required by the Uniform Building Code, 1970 edition, with no special requirements.

Classifications

The Equipment Classification Table provides a listing of structures, components, and systems and identifies those that are Seismic Category I.

While a system may be collectively referred to as Seismic Category I certain portions of the system, not associated with the loss-of-function criteria, can be designated as Seismic Category II or III. In process systems, Seismic Category I design requirements extend to the first seismic restraint or equivalent beyond the isolation valve at the interface of the classification change.

When a system is collectively referred to as Seismic Category II, portions of the system whose limited damage would not interrupt power generation can be designated as Seismic Category III.

Where only portions of systems are identified as Seismic Category I, the boundaries of the Seismic Category I portions of the system are located at the first seismic restraint beyond the Quality Class boundary indicated on the Piping and Instrument Diagram, consistent with NRC Regulatory Guide [1.29](#), Position C.3.

The seismic classifications are consistent with the recommendations of NRC Regulatory Guide 1.29 (with the clarification notes for reactor coolant pump bearing oil and cooling systems).

NOTE: During the construction of SONGS Units 2 and 3, the General Contractor, Bechtel Power Corporation, assigned, as a general rule, Seismic Category consistent with Quality Class of a system, equipment, or component. Quality Class I and Quality Class II systems, equipment, or components were installed to Seismic Category I requirements; Quality Class III systems, equipment, or components were installed to Seismic Category II requirements; and Quality Class IV systems, equipment, or components were installed to Seismic Category III requirements. Exceptions to this general rule are noted on a case-by-case basis. For definitions of Quality Class designations, see "QUALITY ASSURANCE PROGRAM CLASSIFICATIONS" below.

SYSTEM QUALITY GROUP CLASSIFICATIONS

The Equipment Classification Table identifies systems, and portions of systems, important to safety and lists industry codes and standards applicable to pressure-retaining components and associated safety systems. The design, fabrication, inspection, and testing requirements for each classification provide the required degree of conservatism commensurate with the importance of the safety function to be performed.

Quality Group Classifications

Equipment quality group classifications, as defined by NRC Regulatory Guide 1.26, are indicated in the Equipment Classification Table. System quality group classifications, and interfaces between classifications in systems with components or different classifications, are indicated on the system piping and instrumentation diagrams. The quality group classifications are consistent with NRC Regulatory Guide 1.26 (with the clarification noted for reactor coolant pump bearing oil and cooling systems).

Code Requirements

The code requirements applicable to each quality group classification are identified in the Code Requirements for Component Quality Groups table. Design code requirements for electrical components are specified in the Code Requirements for Electrical Components table.

The Principal design and construction code or standard is listed for each major structure, component and system in the Equipment classification Table.

QUALITY ASSURANCE PROGRAM CLASSIFICATIONS

To fulfill the requirements of UFSAR Chapter 17, those items that fall under the Quality Assurance Program are identified in the Equipment Classification Table.

Definitions

Four quality classes were established to identify the required quality control and quality assurance procedures for structures, components, and systems relative to their importance to the safety of the nuclear power system. The quality classes are:

A. Quality Class I

Those structures, components, and systems that prevent the consequences of postulated accidents that could cause undue risk to the health and safety of the public. Specifically, these are structures, components, and systems that comprise, support, or are mechanically connected to the reactor coolant system pressure boundary (RCPB). Electrical systems which perform a safety related function (i.e., Class 1E) are included in the Quality Class II quality classification.

B. Quality Class II

Those structures, components, and systems not in Quality Class I, that are provided to mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public.

C. Quality Class III

Those structures, components, and systems not in Quality Class I or II, whose limited damage could interrupt power generation or release radioactive materials to the environment in excess of normal average release limits, but not in excess of licensed release rates.

D. Quality Class IV

Those structures, components, and systems not in Quality Classes I, II, or III, whose failure could inconvenience normal plant operation.

E. Quality Class III or IV items that are a part of the Fire Protection Program or any equipment credited to meet the requirements of 10CFR50.63 (Station Blackout) per the Topical Quality Assurance Manual, Chapter 8-A, shall include the identifying subclassification "FPS" in their Q-Class designations, as Quality Class III-FPS or IV-FPS.

F. Quality Class III items that are a part of the systems used to reduce the risk from anticipated transients without scram (ATWS) as described in 10CFR50.62 per the Topical Quality Assurance Manual, Chapter 8-B, shall include the identifying subclassification "ATWS" in their Q-Class designations, as Quality Class III-ATWS.

G. Quality Class III or IV systems may contain Non-Safety Interaction (NSI) components that have been credited to support safety systems to mitigate design basis accidents as described in the Topical Quality Assurance Manual, Chapter 8-B Section [1.4](#), and the Non-Safety Interaction Report (Drawing 90511). These components may be listed in the design databases (e.g., [Master Data in SAP](#)) as Quality Class III-NSI or IV-NSI.

Classification

The Equipment Classification Table provides the quality classification of major plant structures, components, and systems. For Quality Class I and II items, the applicable requirements of 10CFR50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants, have been met to ensure the highest quality standards.

Those items designed as Quality Classes I, II, III and IV make up the Project Q-List used in development, review, approval and control of the design of major plant structures, components, and systems. Quality classification information to a finer level of detail than that provided in the Q-List may be found in approved design documents. Such approved design documents include, but are not limited to, drawings (i.e., piping and instrument diagrams, electrical elementaries, one-line diagrams, etc.), specifications, engineering evaluations, validated data bases (i.e., mechanical consolidated database, consolidated controls database instrument index, electrical consolidated database (including environmental qualification master list), piping material classification, etc.) or as established within a Component Classification Evaluation Document (CCED) or Technical Evaluation (TE).

CODE REQUIREMENTS FOR COMPONENT QUALITY GROUPS ^(a)

Component	Quality Group A^(c)	Quality Group B^(c)	Quality Group C^(c)	Quality Group D^(b)
Pressure vessels	ASME B&PV Code, Section III, Division 1, Class 1	ASME B&PV Code, Section III, Division 1, Class 2	ASME B&PV Code, Section III, Division 1, Class 3	ASME B&PV Code, Section VIII, Division 1 or Section 1
Reactor containment pressure vessels (steel)	-----	ASME B&PV Code, Section III, Class MC	-----	-----
Pumps	ASME B&PV Code, Section III, Class 1	ASME B&PV Code, Section III, Class 2	ASME B&PV Code, Section III, Class 3	Manufacturer's Standards
Valves	ASME B&PV Code, Section III, Class 1	ASME B&PV Code, Section III, Class 2	ASME B&PV Code, Section III, Class 3	ANSI B31.1
Piping	ASME B&PV Code, Section III, Class 1	ASME B&PV Code, Section III, Class 2	ASME B&PV Code, Section III, Class 3	ANSI B31.1, Power Piping
0 to 15 psig storage tanks	-----	ASME B&PV Code, Section III, Class 2	ASME B&PV Code, Section III, Class 3	API 620 or equivalent
Atmospheric storage tanks	-----	ASME B&PV Code, Section III, Class 2	ASME B&PV Code, Section III, Class 3	API 650 AWWA D100 or ANSI B96.1
Heat exchangers	ASME B&PV Code, Section III, Class 1 and TEMA R	ASME B&PV Code, Section III, Class 2 and TEMA R	ASME B&PV Code, Section III, Class 3 and TEMA R	ASME B&PV Code, Section VIII, Division 1 and TEMA C or R

- a. See the Equipment Classification Table Notes for abbreviations.
- b. Quality Group D by definition applies to water and steam containing components not part of Quality Group B or C but part of systems or portions of systems that contain or may contain radioactive material.
- c. ASME Section III items that were replaced under Generic Letter 89-09 with non-stamped ASME components or parts are required to have 90034 Q-List maintained for those components or parts, identifying the item installed.

CODE REQUIREMENTS FOR ELECTRICAL COMPONENTS ^{(a)(b)}

Components, Modules, Systems^(c) Cables	Systems	Connectors, Switchgear Transformers^(c)	Diesel^(c)	Systems	Motors	Valve^(c) Actuators	Penetrations
IEEE 323	IEEE 279	IEEE 323	IEEE 323	IEEE 308	IEEE 323	IEEE 323	IEEE 317
IEEE 344	ANS 4.1	IEEE 344	IEEE 344	IEEE 384	IEEE 334	IEEE 382	IEEE 323
IEEE 383		IEEE 383	IEEE 387		IEEE 344	IEEE 344	IEEE 344
IEEE 384			IEEE 384				IEEE 383
ANS 4.1							

- a. See the Equipment Classification Table Notes for abbreviations.
- b. Requirements for IEEE Guides will apply to respective equipment specifications depending upon the licensing commitments established prior to developing the respective equipment specifications. The licensing commitments will determine the applicable revision of the IEEE Guides for which compliance is maintained.
- c. Table lists applicable codes. No specific design requirements have been established for components.

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
1.2.6.3	Lightning Protection					
	Lightning rods and associated cables and fasteners	NA	U.L. 96A, NFPA 78	III-FPS	II	C
2.4 & 2.5	HYDROLOGIC ENGINEERING/GEOLOGY, SEISMOLOGY, AND GEOTECHNICAL ENGINEERING (SITE RELATED HAZARDS AND PROTECTION)					
2.4.5.5	Seawall	NA	ACI 318	III	II	O
2.5.6	Probable Maximum Flood (PMF) Berm and Channel	NA	(b)	II	II	M/O
3.2	CLASSIFICATION OF STRUCTURES, COMPONENTS AND SYSTEMS					
	Consumables (including lubricants/greases) important to the functional operability and performance of safety related structures, systems and components	NA	(j),(y)	I,II	I	All
	Consumables (including lubricants/greases) not important to the functional operability and performance of safety related structures, systems and components	NA	(j),(y)	III,IV	II,III	All
3.4.1	FLOOD PROTECTION					
3.4.1.1	Waterstops, bellows	NA	(ag)	III	II(g)	All
	SEISMIC CATEGORY I STRUCTURES					
3.5	Missile Barriers	NA	AISC, BC-TOP-9A	II	I	C/S/D/O/ A/P/TK/ MSIV
3.6	Pipe Whip Restraints	NA	AISC, CENPD-168, Rev 1, BN-TOP-2	II	I	C/P/S/T/TK/ MSIV

¹ See end of table for all subsequent footnotes and definitions of headings. Definitions for classifications of structures, components, and systems are provided on pages 9 through 12.

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
3.8.1	Concrete Containment					
	Containment building	NA	(c)	II	I	C
	Crane supports	NA	(c)	II	I	C
	Liner plate	NA	BC-TOP-1	II	I	C
	Penetration sleeve embedded in concrete and welded to liner plate(d)	NA	BC-TOP-1 III-MC (material certification only)	II	I	C
	Personnel lock, escape lock, equipment hatch	NA	III-MC	II(u), (aa)	I	C
3.8.3	Containment Internal Structures					
	NSSS supports	NA	(c)	I	I	C
	Jib Crane	NA	CMAA	III	II(g)	C
	Other internal structures	NA	(c)	II	I	C
3.8.4	Other Seismic Category I Structures					
	Auxiliary building(e)	NA	(c)	II	I	A
	Fuel handling building	NA	(c)	II	I	F
	Safety equipment building(e)	NA	(c)	II	I	S
	Intake structure and box conduit structure (See Section 9.2.5 for Ultimate Heat Sink)	NA	(c)	II	I	IN
	Electrical/piping junction structure	NA	(c)	II	I	Y
	Diesel generator building	NA	(c)	II	I	D
	Condensate and refueling tank enclosure structure	NA	(c)	II	I	TK
	Electrical tunnels	NA	ACI 318	II	I	O/Y
	Duct banks	NA	ACI 318	II	I/II	O/Y
	Manholes	NA	ACI 318	II	I	O/Y
3.9.4	Reactor Control Element Drive System					
	Drive mechanisms	NA	None	I	I	C
	Drive mechanism housings	A	III-1	I	I	C
	Drive mechanism supports	NA	ASME	II	I	C
3.9.5	Reactor Pressure Vessel Internals					
	Flow skirt	NA	NA	II	I	C
	Other internals	NA	NA	I	I	C

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
4.	REACTOR					
4.2	Reactor Fuel System					
	Control element assemblies(f)	NA	None	I	I	C
	Fuel assemblies	NA	None	I	I	C
	Neutron source	NA	None	III	II	C
4.4.6	Vibration and Loose Parts Monitoring System	NA	NA	IV	III(an)	A/C/P
5.	REACTOR COOLANT SYSTEM (RCS) AND CONNECTED SYSTEMS					
5.3	Reactor Vessel					
	Vessel and head	A	III-1	I	I	C
	Head studs, nuts, and washers	A	III-1	I	I	C
	Supports					
	Integral to vessel	A	III-1	I	I	C
	Nonintegral (support columns)	NA	AISC	I	I	C
5.4.1	Reactor Coolant Pumps (RCPs)					
	Pumps (pressure-retaining portions)	A	III-1	I	I	C
	Motors	NA	NEMA MG-1	III	II(g)	C
	Flywheels	NA	Reg Guide 1.14(h)	II	I	C
	Supports	NA	ASME	I	I	C
	Operating and backup oil lift pumps(i)	D	(j)	III	II(g)	C
	Operating and backup oil lift pump motors(i)	D	(j)	III	II(g)	C
	Operating and backup anti-reverse rotation device (ARRD) pumps(i)	D	(j)	III	II(g)	C
	Operating and backup ARRD pump motors(i)	D	(j)	III	II(g)	C
	RCP seal heat exchangers					
	RCS side and RCS Pressure Boundary	A	III-1	I	I	C

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UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
	CCW side	D(ad)	B31.1(ad)	III	II	C
5.4.1 (Cont.)	Motor heat exchangers(i)	D	(j)	III	II(g)	C
5.4.2	Steam Generators <u>(av)</u>					
	Vessel (primary side)	A	III-1	I	I	C
	Vessel (secondary side)	B	III-2	II	I	C
	Snubbers and restraints	NA	III-NF	I	I	C
	Supports (sliding base)	NA	ASME	I	I	C
5.4.3	Reactor Coolant Piping					
	Reactor coolant pressure boundary	A	III-1	I	I	C
	Supports	NA	ASME	I	I	C
5.4.10	Pressurizer					
	Vessel	A	III-1	I	I	C
	Heaters and cables	A, NA	III-1(k)	I, III	I, II	C
	Supports (integral)	NA	III-1	I	I	C
5.4.11	Pressurizer Relief Discharge System					
	Quench tank	D	VIII	III	II(g)	C
	Piping					
	Upstream of safety valve	A	III-1	I	I	C
	Downstream of safety valve	D	B31.1	III	II	C
	Valves associated with quench tank	D	B31.1	III	II	C
	Supports(l) (integral)	D	VIII	III	II	C
5.4.12	Reactor Coolant System Valves					
	Reactor coolant pressure boundary isolation valves and valves within boundary	A	III-1	I	I	C
	Supports	NA	ASME	I	I	C
5.4.13	Reactor Coolant System Safety and Relief Valves					
	Safety valves	A	III-1	I	I	C
	Supports	NA	ASME	I	I	C

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UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
6.	ENGINEERED SAFETY FEATURES					
6.1.2	Organic Materials Protective Coatings	NA	ANSI N101.4, N101.2	II	NA	C
6.2.1	Containment Structure (See Seismic Category I Structures, Section 3.8)					
6.2.2	Containment Heat Removal Systems					
	Containment spray system					
	Tanks	B	III-2	II	I	TK
	Pumps	B	III-2	II	I	S
	Pump motors	NA	IEEE 323/344	II	I	S
	Pump motor coolers	C	III-3	II	I	S
	Piping and Valves	B	III-2	II	I	C/P/S
	Shutdown Cooling (SDC) Heat Exchangers	B	III-2/TEMA R	II	I	S
	Spray headers	B	III-2	II	I	C
	Supports	NA	III-NF	II	I	C
	Containment emergency cooling system (See Paragraph 9.4.1.2)					
6.2.4	Containment Isolation System					
	Piping Penetration	B	III-2	II	I	C/P
	Valves					
	In III-1 lines (inside containment)	A	III-1	I	I	C
	Containment isolation	B	III-2	II	I	C/P
6.2.5	Combustible Gas Control System					
	Dome air circulators (See Paragraph 9.4.1.2)					
	H ₂ purge supply and exhaust (See Paragraph 9.4.1.2)					
	H ₂ monitoring system					
	Analyzer	NA	IEEE 279	II	I	C/A
	Containment penetration piping (analyzer calibration)	B	III-2	II	I	C/P
	Containment isolation valves	B	III-2	II	I	C/P

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UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
	(analyzer calibration)					
6.2.5 (Cont.)	H ₂ recombiners	NA	IEEE 279/308/344	II	I	C
	Supports(l)					
6.3	Safety Injection System					
	Tanks	B	III-2	II	I	C/TK
	Pumps	B	III-2	II	I	S
	Pump motors	NA	IEEE 323/344	II	I	S
	Pump motor coolers	C	III-3	II	I	S
	Piping and valves					
	Reactor coolant pressure boundary	A	III-1	I	I	C
	Drain lines	NA	B31.1	III	II	C
	Other	B	III-2(ar)	II	I	S/C
	Containment Building Emergency Drain Sump Liner Plate	NA	AISC/ASME	II	I	C
	Sump, Trash Rack, and Grating Cage	NA	AISC, ACI 318	II	I	C
	Containment Emergency Sump Screens	NA	(j)	II	I	C
	Supports(l)					
6.5	Fission Product Removal and Control Systems					
	Iodine removal system					
	Tank(v)	NA	III-2	IV	II(g)	S
	Piping and valves (v)	NA	III-2	IV	II(g)	C/S
	Supports(v)	NA	ASME	IV	II(g)	C
	Trisodium Phosphate (TSP)	NA	NA	VI	NA	C
	TSP Baskets	B	III-2	II	I	C
	TSP Racks	NA	AISC	II	I	
	(Also see the following sections: Containment Hydrogen Purge System, Paragraph 9.4.1.2; Emergency Operation Control Room Ventilation System, Paragraph 9.4.2.2; Fuel Handling Building Ventilation System, Paragraph 9.4.3.1; and Containment Spray System, Subsection 6.2.2)					

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
7.	INSTRUMENTATION AND CONTROL SYSTEMS					
7.2.1.1.1	Reactor Protective System					
	All portions which must operate to safely shut down the reactor including excore neutron instruments (safety channels)	NA	IEEE 279(m)	I,II	I	A/C/P/S
	Neutron moderating material	NA	(j)	II	NA	C
7.3	Engineered Safety Features Systems					
7.3.1	Engineered safety features actuation system (ESFAS)					
7.3.1.1.1	Safety injection	NA	IEEE 279(m)	II	I	A/C/P/S
7.3.1.1.2	Recirculation	NA	IEEE 279(m)	II	I	A/C/P/S
7.3.1.1.3	Containment spray	NA	IEEE 279(m)	II	I	A/C/P/S
7.3.1.1.4	Containment isolation	NA	IEEE 279(m)	II	I	A/C/P/ MSIV
7.3.1.1.5	Containment purge isolation	NA	IEEE 279(m)	II	I	A/C/P
7.3.1.1.6	Main steam isolation	NA	IEEE 279(m)	II	I	A/C/TK/ MSIV
7.3.1.1.7	Auxiliary feedwater	NA	IEEE 279(m)	II	I	A/C/TK/ MSIV
7.3.1.1.8	Containment emergency cooling	NA	IEEE 279(m)	II	I	A/C/P
7.3.1.1.9	Containment combustible gas control	NA	IEEE 279(m)	II	I	A/C
7.3.1.1.10	Control room isolation	NA	IEEE 279(m)	II	I	A
7.3.1.1.11	Fuel handling building isolation	NA	IEEE 279(m)	II	I	A/F
7.3.1.1.12	Toxic gas isolation	NA	IEEE 279(m)	II	I	A
7.3.1.1.13	Auxiliary supporting systems					
7.3.1.1.13.1	Saltwater cooling	NA	IEEE 279(m)	II	I	A/IN
7.3.1.1.13.2	Component cooling water	NA	IEEE 279(m)	II	I	A/P/S
7.3.1.1.13.3	Diesel generator systems	NA	IEEE 279(m)	II	I	A/D
7.3.1.1.13.4	Emergency chilled water system	NA	IEEE 279(m)	II	I	All
7.3.1.1.13.5	HVAC systems	NA	IEEE 279(m)	II	I	A/C/F/P/MSI V/IN/ S/T/TK
7.3.1.1.13.6	Onsite power	NA	IEEE 279(m)	II	I	All

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UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
7.4	Instrumentation and Control Systems Required for Safe Shutdown					
7.4.1.2	Auxiliary feedwater	NA	IEEE 279(m)	II	I	A/TK/ MSIV
7.4.1.4	Atmospheric steam dump	NA	IEEE 279(m)	II	I	A/MSIV
7.4.1.5	Shutdown cooling system	NA	IEEE 279(m)	II	I	A/C/S
7.4.1.6	Chemical and volume control system (boron addition portion)	NA	IEEE 279(m)	II	I	A/P/S
7.5	Safety Related Display Instrumentation					
7.5.1.1	Plant process display instrumentation	NA	IEEE 279(m)	II	I	A/C/F/S
7.5.1.2	Reactor protective system monitoring	NA	IEEE 279(m)	II	I	A/C
7.5.1.3	Engineered safety features system monitoring	NA	IEEE 279(m)	II	I	A/C/F/S
7.5.1.4	Auxiliary support system instrumentation	NA	IEEE 279(m)	II	I	A/C/F/S
7.5.1.5	Remote shutdown panel instrumentation	NA	IEEE 279(m)	II	I	A
7.5.1.6	Control element assembly position indication	NA	IEEE 279(m)	III	II	A/C
7.5.1.7	Post-accident monitoring instrumentation	NA	IEEE 279(m)	II	I	A/C/F/S
7.5.1.8	Bypass and inoperable status indication instrumentation	NA	IEEE 279(m)	II	I	A/C/F/S
7.5.1.9	Pressurizer safety valve position monitors	NA	IEEE 279/383	II	I	A/C/F/S
7.5.3	Inadequate Core Cooling system (including Reactor Vessel Level Monitoring System)(t)	NA	(m)	II	I	A/C/P/S
7.6	All other Instrumentation Systems Required for Safety(z)					
7.6.1.1	Shutdown cooling interlocks	NA	IEEE 279(m)	II	I	A/C/S
7.6.1.2	Safety injection tank isolation valve interlocks	NA	IEEE 279(m)	II	I	A/C
7.6.1.3	Critical function monitoring	NA	(m)	IV	III	A

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UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
	system					
7.6.1.4	Dose Assessment Computer (DAC)	NA	(j)	IV	III	A
7.6.1.7	Anticipated Transient Without Scram (ATWS) System					
	Pressure Sensing Lines & Transmitters	NA	(m)	II	I	C
	Diverse Scram System (DSS) Cabinet and Cabling	NA	(m)	III-ATWS	II(g)	A/C/P
	Diverse Turbine Trip (DTT) Cabling	NA	(m)	III-ATWS	II	A
	Diverse Emergency Feedwater Actuation System (DEFAS) Cabinet and Cabling	NA	(m)	III-ATWS	II(g)	A/C
7.6.1.10	Data Acquisition System (DAS)	NA	(m)	III	II	A
7.7	Control Systems Not Required for Safety					
7.7.1.1.1	Boron control system	NA	(m)	III	II	A/C
7.7.1.2.1	Pressurizer pressure control system	NA	(m)	III	II	A/C
7.7.1.2.2	Pressurizer level control system	NA	(m)	III	II	A/C
7.7.1.3	Feedwater control system	NA	(m)	III	II	A/C/T/ MSIV
7.7.1.4	Steam bypass control system	NA	(m)	III	II	A/C/T
7.7.1.5	Core operating limit supervisory system	NA	(m)	IV	III	A
7.7.1.6	Plant computer system	NA	(m)	IV	III	A
7.7.1.7	In-Core instrumentation system	NA	(m)	III	II	A/C
7.7.1.8	Ex-core instrumentation system (startup and control channels)	NA	(m)	III	II	A/C
7.7.1.9	Essential plant parameters monitoring system	NA	(m)	IV-FPS	III	P
7.7.1.10	Drain Down Level Monitoring System (DLMS)					
	Cable and in-containment junction boxes	NA	(m)	III	II(g)	A/C/P
	Transducers and computer	NA	(m)	IV	III	A
7.7.3.1	Refueling Water Level Instrument (RWLI)					
	Transmitters	NA	(m)	III	II	C

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UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
	Indicators	NA	(m)	III	II(g)	A
8.	ELECTRIC POWER SYSTEMS					
8.2	Offsite Power System					
	Main transformers	NA	ANSI C57.12	III	II	O
	Auxiliary transformers	NA	ANSI C57.12	III	II	O
	Reserve auxiliary transformers	NA	ANSI C57.12	III	II	O
	220 kV disconnect switches	NA	ANSI C57.30	III	II	O
	Electrical equipment (220 kV switchyard)	NA	(j)	III	II	O
8.3	Onsite Power Systems					
8.3.1	AC power systems					
	Class 1E equipment (includes associated instrumentation and control devices)					
	4,160V switchgear	NA	IEEE 323/344/308	II	I	A
	480V load centers	NA	IEEE 323/344/308	II	I	A
	480V motor control centers	NA	IEEE 323/344/308	II	I	A
	Diesel generator packages	NA	IEEE 323/344/387/ 308/384	II	I	D
	AC control power inverters	NA	IEEE 323/344/308	II	I	A
	Cables					
	8,000V power	NA	IEEE 323/383	II	N/A	A/C/D/P/ S/TK
	600V power	NA	IEEE 323/383	II	N/A	A/C/D/P/MSI V/S/ TK
	600V control and instrumentation devices, cable splices, connectors, terminations, and terminal blocks	NA	IEEE 323/383	II	N/A	A/C/D/P/MSI V/S/ TK

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
8.3.1 (Cont.)	Conduit, underground duct and cable trays	NA	(j)	II(n)	I(n)	A/C/D/P/MSI V/S/ TK
	Conduit and cable tray supports	NA	(j)	II(n)	I(n)	A/C/D/P/MSI V/S/ TK
	Electrical penetration assemblies					
	Containment penetrations	NA	III MC/IEEE 317/323/344/383	II	I	C/P
	Other	NA	(j)	II	I	A
	Non-Class 1E equipment	NA	(j)	III III-FPS	II, II(g)	All
8.3.2	DC power systems					
	Class 1E equipment					
	125V batteries, battery racks, chargers, distribution equipment, and associated instrumentation and control devices	NA	IEEE 323/344	II	I	A
	120VAC vital bus system	NA	IEEE 323/344	II	I	A
	Cables (includes splices, connectors, and terminal block)	NA	IEEE 323/383	II	NA	A/C/D/P/S/M SIV/ TK
	Conduit, underground duct, and cable trays	NA	(j)	II(n)	I(n)	All
	Conduit and cable tray supports	NA	(j)	II(n)	I(n)	A/C/D/P/S/M SIV/ TK
	Non-Class 1E equipment	NA	(j)	III III-FPS	II, II(g)	All
	Technical support center and Dose Assessment Computer UPS systems	NA	(j)	IV	N/A	A
9.	AUXILIARY SYSTEMS					
9.1.1	New Fuel Storage					
	New fuel storage racks	NA	AISC/ASME(o)	II	I	F
	Supports(l)					
9.1.2	Spent Fuel Storage					
	Storage pool structure	NA	(c)	II	I	F
	Storage pool liner plate	NA	AISC/ASME(o)	II	I	F

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UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
9.1.3	Spent fuel storage racks	NA	AISC/ASME(o)	II	I	F
	Supports(l)					
	Spent Fuel Pool Cooling and Cleanup System					
	Pumps					
	Cooling pumps	C	III-3	II	I	F
	Makeup & purification pumps	D	(j)	III	II	F
	Pump motors					
	Cooling pump motors	NA	IEEE 323/344	II	I	F
	Makeup & purification pump motors	NA	(j)	III	II	F
	Piping and valves					
	Spent fuel cooling subsystem	C	III-3	II	I	C/F/P
	Purification subsystem					
	Containment penetration	B	III-2	II	I	C/P
	Other	D	B31.1	III	II	C/F/P
	Makeup subsystem (primary)	C	III-3	II	I	C/F/O/TK
	Makeup subsystem (backup)	D	B31.1	III	II	F/O/TK
	Other					
	Heat exchangers	C	III-3/TEMA R	II	I	F
	Ion-exchangers	D	VIII	III	II	F
	Filters and strainers	D	VIII	III	II	F
	Skimmers	D	(j)	IV	III	F
	Supports(l)					
9.1.4	Fuel Handling System					
	Refueling machine including auxiliary hoist	N/A	CMAA/AISC	III	II(g)	C
	Spent fuel handling machine	N/A	CMAA/AISC	III	II(g)	F
	Control element assembly change machine	N/A	AISC	III	II(g)	C
	Fuel transfer equipment set	N/A	CMAA/AISC	III	II	F/C
	Fuel transfer tube and flexible bellows assembly at containment penetration	B	III-2/III-MC	II	I	F/C

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UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
9.1.4 (Cont.)	Fuel transfer valve	D	III-3(p)	II	I	F
	Reactor vessel head lifting rig	NA	(j)	III	II(g)	C
	Dry sipping equipment	NA	(j)	IV	III	C
	Reactor internals lifting rig	NA	(j)	III	II(g)	C
	Refueling pool seal assembly	NA	(j)	III	II(g)	C
	Containment polar crane	NA	CMAA	III	II(g),(q)	C
	Mechanical Operation:					
	Bridge structure			III	II(g)	C
	Trolley			III	II(g)	C
	Main hoist and auxiliary hoist			III	II(g),(q)	C
	Main hoist and auxiliary hoist brakes			III	II(g),(q)	C
	Electrical Control:					
	DC Power/PLC			IV	II(g)	C
	Trolley drive and brakes			IV	II(g)	C
	Bridge drive and brakes			IV	II(g)	C
	Main hoist and auxiliary hoist drives			IV	II(g)	C
	Rotate drive (main hook)			IV	II(g)	C
	Limit switches and resolvers			IV	II(g)	C
	Platforms and Jib Hoist			IV	II(g)	C
	Cask handling crane	NA	CMAA	III	II(g), (q), (au)	F
	New fuel elevator	NA	CMAA/AISC	IV	II(g)	F
	New fuel crane	NA	CMAA	IV	II(g)	F
	Liner plate for fuel transfer canal	NA	AISC/ASME(o)	II	I	C
	Supports(l)					
9.2.1	Saltwater Cooling System					
	Pumps	C	III-3/HI	II	I	IN
	Pump motors	NA	IEEE 323/344	II	I	IN
	Piping and valves	C	III-3	II	I	S/IN
	Supports(l)					

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UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
9.2.2	Component Cooling Water System					
	Surge tanks	C	III-3	II	I	S
	Primary Plant Makeup Storage Tanks (also see Subsection 9.3.4 and Section 11.2)	C(ai)	API 620/650(aj)	II(ai)	I(ai)	A
	Backup Nitrogen System	C(af)	III-3/ANSI B31.1	II	I	S/MSIV
	CCW pumps	C	III-3/Hi/API 610	II	I	S
	CCW makeup pumps	C(ak)	III-2(ak)	II	I	A
	Pump motors	NA	IEEE 323/344	II	I	S/A
	CCW pump motor coolers	C	III-3	II	I	S
	Chemical pot feeder tanks	NA	(j)	IV	III	S
	Piping and Valves					
	Containment penetration	B	III-2	II	I	C/P
	Other	C	III-3	II	I	A/C/S/F/P
	CCW/SWC Heat Exchangers	C	III-3 TEMA R	II	I	S
	Supports(l)					
9.2.3	Demineralized Water Makeup System					
	Demineralized Water Storage system	NA	API 620	III	II	O
	Makeup demineralizer system	NA	VIII	IV	III	O
	Demineralizer neutralization system	NA	SDWQCB	IV	III	O
	Retention Berm	NA	UBC	II	I	O
	Supports(l)					
9.2.4	Potable and Sanitary Water systems					
	Domestic water system	NA	UPC	IV	III	O
	Sanitary waste and vents system	NA	UPC	IV	III	O
	Supports(l)					
9.2.5	Ultimate Heat Sink (See Section 3.8.4 for the Onshore Intake Structure and Box Conduit)					
	Auxiliary intake structure	NA	(c)	II	I	IN
	Main offshore intake structure	NA	ACI 318	III	II(g)	IN
	Intake conduit					
	West end of box conduit to	NA	(c)	II	I	IN

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UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
	one pipe section beyond auxiliary intake structure					
	From one pipe section beyond auxiliary intake structure to main offshore intake structure	NA	ACI 318	III	II(g)	IN
	Outfall conduit					
	West end box conduit seaward	NA	(c)	III	II	IN
9.2.6	Condensate Storage Facility					
	Portion associated with auxiliary feedwater system					
	Condensate storage tank 2(3)T-121	C	III-3	II	I	TK
	Piping and valves	C	III-3	II	I	TK
	Supports(l)					
	Portion associated with turbine plant					
	Condensate storage tank 2(3)T-120	NA	API 650	III	II	TK
	Pumps	NA	(j)	III	II	O
	Piping and valves	NA	B31.1	III	II	O
	Supports(l)					
9.2.7	Nuclear Service Water system					
	Storage tank	NA	API 620	III	II	Y
	Pumps and motors	NA	HI/NEMA MG-1	III	II	Y
	Piping and valves					
	Containment penetration	B	III-2	II	I	C/P
	Relief valve (GL 96-06)	C	III-3	II	I	C
	Other	NA	B31.1	III	II	A/C/F/ P/S/Y
	Supports(l)					
9.2.8	Turbine Plant Cooling Water System					
	Tanks	NA	API 620	III	II	O
	Chemical By-pass Feeder	NA	(j)	IV	III	T
	Pumps and motors	NA	(j)	III	II	O
	Piping and valves	NA	B31.1	III	II	T/O

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
9.2.8 (Cont.)	Heat exchangers	NA	VIII	III	II	O
	Filters	NA	(j)	III	II	T/O
	Supports(l)					
9.3.1	Compressed Air System					
	Receivers	NA	VIII	III	II	T
	Compressors	NA	VIII	III	II	T
	Piping and valves					
	Containment penetration	B	III-2	II	I	C/P
	Other	NA	B31.1	III	II	All
	Aftercoolers	NA	VIII	III	II	T
	Dryers	NA	VIII	III	II	T
	Filters	NA	VIII	III	II	T
	Supports(l)					
9.3.2	Process Sampling Systems					
	Nuclear plant sampling system					
	Sample vessels	D	VIII	III	II	A
	Sample blowers	D	VIII	III	II	A
	Piping and valves					
	Reactor coolant system sample lines up to containment isolation valves outside containment	B	III-2	II	I	C/P
	Coolant chemical and volume control system sample lines	B(x)	III-2(x)	III	II	A
	Volume control tank sample lines up through the first normally shut valve	B	III-2	II(am)	II	A
	Safety injection system sample lines up through the first normally shut valve	B	III-2	II	I	S/A
	Waste gas system sample lines	D	B31.1	III	II	A
	Containment penetration	B	III-2	II	I	C/P
	Other	D	B31.1	III	II	C/P/A

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
9.3.2 (cont.)	Coolers	D	VIII	III	II	A
	Filters	D	VIII	III	II	A
	Supports(I)					
	Turbine plant sampling system except coolers	NA	B31.1	IV	III	A/T
	Turbine plant sampling system coolers	NA	VIII	III	II	A
9.3.3	Equipment and Floor Drainage System					
	Nonradioactive sump and drain systems					
	Piping and valves/pumps					
	Auxiliary building	NA	UPC(j)	III, IV	II, III	A
	Diesel generator building	NA	UPC(j)	III	II	D
	East and west turbine plant area	NA	UPC(j)	III, IV	II, III	T
	Intake structure area	NA	UPC(j)	IV	III	IN
	Oily waste area	NA	UPC(j)	IV	III	Y
	Storm drainage	NA	UPC(j)	IV	III	O/Y
	Sanitary drainage	NA	UPC(j)	IV	III	All
	North Industrial Area	NA	UPC(j)	III, IV	II, III	Y
	Supports(I)					
	Radioactive sump and drain systems					
	Piping and valves/pumps					
	Component cooling water	D	B31.1(j)	III	II	S
	Containment area	D	B31.1(j)	III	II	C
	Fuel handling building	D	B31.1(j)	III	II	F
	Penetration area	D	B31.1(j)	III	II	P
	Safety injection area	D	B31.1(j)	III	II	S
	Storage tank area	D/NA	B31.1(j)	III	II	TK
	Radwaste area	D	B31.1(j)	III	II	A
	Piping and valves penetrating containment	B	III-2	II	I	C/P
	Liner plate for safety equipment building sumps,	NA	AISC/ASME	III	II	A/F/P/S

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
	fuel handling building sump, penetration area sump, and radwaste area sump					
	Supports(I)					
9.3.4	Chemical and Volume Control System					
	Tanks					
	Volume control tank	B	III-2	II	II	A
	Boric acid makeup tanks	C	III-3	II	I	A
	Boric acid batching tank	D	VIII	IV	III	A
	Chemical addition tank	D	VIII	IV	III	A
	Primary Plant Makeup Storage Tanks (also see Subsection 9.2.2 and Section 11.2)	D(ai)	API 620/650(aj)	II(ai)	I(ai)	A
	Pumps					
	Reciprocating charging pumps	B	III-2	II	I	A
	Boric acid makeup pumps	C	III-3	II	I	A
	Primary plant makeup pumps	D	(j)	III	II	A
	Motors					
	Charging pump motors	NA	IEEE 323/344	II	I	A
	Boric acid makeup pump motors	NA	IEEE 323/344	II	I	A
	Primary plant makeup pump motors	NA	(j)	III	II	A
	Piping and valves					
	Containment penetrations	B	III-2	II	I	C/P
	Letdown portion (from containment penetration to letdown backpressure control valve)	B	III-2	II	I	A/P
	Letdown portion (from letdown backpressure control valve to radwaste diversion valve)	B(x)	III-2(x)	III	II	A
	Volume control tank (between isolation valves)	B	III-2	II(am)	II	A
	Charging portion	B	III-2	II	I	A/P

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
9.3.4 (Cont.)	Boric acid makeup system portion	C	III-3	II	I	A
	Boric acid blending tee	B	III-2	II	I	A
	From refueling water tank to charging pump suction	B	III-2	II	I	A/S/TK
	Pulsation dampeners	B	III-2	II	I	A
	Regenerative heat exchanger	B	III-2	II	I	C
	Letdown heat exchanger					
	Tube side	B	III-2	II	I	A
	Shell side	C	III-3	II	I	A
	Purification ion-exchanger	B	III-2	II(am)	II	A
	Delithiating ion-exchanger	B	III-2	II(am)	II	A
	Deborating ion-exchanger	B	III-2	II(am)	II	A
	Purification filter	B	III-2	II(am)	II	A
	Boric acid tank heaters	NA	(j)	II	I	A
	Boronometer	D	(j)	IV	III	A
	Supports(l)					
9.3.6	Post-Accident Sampling System					
	Sample vessels	D	(j)	IV	NA	A
	Sample pumps	D	(j)	IV	NA	A
	Piping and valves					
	Containment penetration	B	III-2	II	I	C/P
	Other	D	B31.1	IV	NA	C/A
	Sample vessel heat exchanger	D	(j)	IV	NA	A
	Strainer	D	(j)	IV	NA	A
	Control panel	NA	(j)	IV	NA	A
	Ge crystal package	NA	(j)	IV	NA	A
	Multichannel analyzer	NA	(j)	IV	NA	A
	Supports(l)					
9.4.1	Containment Building Ventilation Systems					
9.4.1.1	Normal Operation--Containment Building Ventilation Systems					
	Containment normal cooling units					

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
9.4.1.1 (Cont.)	Air handling units	NA	ARI/AMCA	III	II	C
	Ductwork and dampers	NA	SMACNA	III	II(g)	C
	Chillers	NA	ARI	III	II	A
	Chilled water pumps	NA	(j)	III	II	A
	Compression tanks	NA	ASME Section VIII	III	II	A
	Piping and valves					
	Containment penetration	B	III-2	II	I	C/P
	Other (inside containment)	NA	B31.1	III	II(g)	C
	Other (outside containment)	NA	B31.1	III	II	P/A
	Strainers	NA	(j)	III	II	A
	Supports(l)					
	Purge recirculation cleanup system					
	Purge supply units	NA	AMCA	III	II	A
	Purge exhaust units	NA	AMCA	III	II	A
	Recirculation cleanup unit (HEPA filters)	NA	HSI-306/ MIL-F-51068C	III	II	C
	Ductwork and dampers					
	Containment penetration	B	III-2	II	I	C/P
	Other	NA	ORNL-65/SMAC NA	III	II(g)	C/P/A
	Supports(l)					
	CEDM cooling system					
	Cooling coils	NA		III	II	C
	Fans and motors	NA	AMCA	III	II	C
	Ductwork and dampers	NA	SMACNA	III	II(g)	C
	Supports(l)					
	Reactor cavity cooling system					
	Fans and motors	NA	AMCA	III	II	C
	Ductwork and dampers	NA	SMACNA	III	II(g)	C
	Supports(l)					
	Lower level circulation system					
	Fans and motors	NA	AMCA	IV	III	C

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
9.4.1.1 (Cont.)	Supports(l)					
	Tendon gallery ventilation system					
	Fans and motors	NA	AMCA	IV	III	O
	Ductwork	NA	SMACNA	IV	III	O
	Supports(l)					
	MSIV enclosure and penetration area cooling system					
	Supply fans	NA	AMCA	III	II	MSIV
	Exhaust fans	NA	AMCA	III	II	MSIV
	Duct work and dampers	NA	SMACNA	III	II	MSIV
	Supports(l)					
9.4.1.2	Emergency Operation-- Containment Building Ventilation Systems					
	Containment emergency cooling system					
	Cooling coils	B	III-2	II	I	C
	Fans and motors	NA	AMCA/IEEE 323/344	II	I	C
	Ductwork and dampers	NA	(c)	II	I	C
	Supports(l)					
	Hydrogen purge supply and exhaust units					
	Prefilters	NA	(j)	III	II(g)	P
	HEPA filters	NA	HSI-306/ MIL-F-51068C	III	II(g)	P
	Charcoal filters	NA	CS-8T	III	II(g)	P
	Electric heating coils	NA	(j)	III	II	P
	Fans and motors	NA	AMCA	III	II	P
	Ductwork					
	Containment penetration	B	III-2	II	I	C/P
	Other	NA	ORNL-65/SMAC NA	III	II(g)	C/P
	Valves					
	Containment penetration	B	III-2	II	I	C/P

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
9.4.1.2 (Cont.)	Other	NA	B31.1	III	II	P
	Supports(l)					
	Dome air circulating units					
	Fans and motors	NA	AMCA/IEEE 323/ 334/344	II	I	C
	Ductwork	NA	SMACNA	II	I	C
	Supports(l)					
9.4.2	Auxiliary Building Ventilation Systems					
9.4.2.1	Normal Operation--Auxiliary Building Ventilation Systems					
	Control room system					
	Air handling units	NA	AMCA/ARI	III	II	A
	Fan coil units	NA	AMCA/ARI	III	II	A
	Computer room fan coil units	NA	(j)	IV(r)	III(r)	A
	Control Room smoke removal fan	NA	AMCA/NFPA(j)	III-FPS	II	A
	Electric duct heaters	NA	(j)	III	II	A
	Exhaust fans	NA	AMCA	III	II	A
	Transfer fans	NA	AMCA	III	II	A
	Ductwork and dampers	NA	SMACNA	II, III	I, II(g)	A
	Supports(l)					
	Radwaste area system					
	Air handling units	NA	AMCA	III	II	A
	Exhaust fans	NA	AMCA	III	II	A
	CEDMCS room fan coil units	NA	(j)	III(s)	II(s)	A
	Electric duct heaters	NA	(j)	III	II	A
	Ductwork and dampers	NA	SMACNA	III	II	A
	Supports (l)					
	ESF switchgear room systems					
	Air handling units	NA	AMCA/ARI	III	II	A
	Exhaust fans	NA	AMCA	III	II	A
	Electric duct heaters	NA	(j)	III	II	A
	Ductwork and dampers	NA	SMACNA	III	II	A

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
9.4.2.1 (Cont.)	Supports(l)					
	Non-Class 1E switchgear room systems					
	Exhaust fans	NA	AMCA	IV	III	A
	Ductwork and dampers	NA	SMACNA	IV	III	A
	Prefilters	NA	(j)	IV	III	A
	Supports(l)					
	Health physics and locker room systems					
	Air handling units	NA	AMCA/ARI	IV	III	A
	Exhaust fans	NA	AMCA	IV	III	A
	Transfer fans	NA	AMCA	IV	III	A
	Electric duct heaters	NA	(j)	IV	III	A
	Ductwork and dampers	NA	SMACNA	IV	III	A
	Supports(l)					
	Public address and communication room system					
	Air handling units	NA	AMCA/ARI	IV	III	A
	Exhaust fans	NA	AMCA	IV	III	A
	Electric duct heaters	NA	(j)	IV	III	A
	Ductwork and dampers	NA	SMACNA	IV	III	A
	Supports(l)					
	Cable spreading and electrical room systems					
	Air handling units	NA	AMCA	III	II	A
	Return fans	NA	AMCA	III	II	A
	Ductwork and dampers	NA	SMACNA	III	II	A
	Supports(l)					
	Chiller room systems					
	Air handling unit	NA	AMCA	III	II	A
	Exhaust fan	NA	AMCA	III	II	A
	Electric duct heater	NA	(j)	III	II	A
	Ductwork and dampers	NA	SMACNA	III	II	A

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
9.4.2.1 (Cont.)	Supports(l)					
	Battery room systems					
	Air handling unit	NA	AMCA	III	II	A
	Exhaust fan	NA	AMCA	III	II	A
	Ductwork and dampers	NA	SMACNA	III	II	A
	Supports(l)					
	Normal chilled water system					
	Chillers	NA	ARI	IV	III	A
	Pumps and motors	NA	(j)	IV	III	A
	Air separator	NA	(j)	IV	III	A
	Compression tank	NA	API 620	IV	III	A
	Piping and valves	NA	B31.1	IV	III	A
	Supports(l)					
	Continuous exhaust system					
	Fans	NA	AMCA	III	II	A
	Ductwork and dampers	NA	SMACNA	III	II	A/O
	Plant vent stacks	NA	(c)	III	II(g)	O
	Supports(l)					
	Guard room					
	Air conditioning unit	NA	AMCA	IV	III	A
	Transfer fan	NA	AMCA	IV	III	A
	Piping and valves	NA	B31.1	IV	III(g)	A
	Strainer	NA	(j)	IV	III	A
	Supports(l)					
	Post-accident sampling room					
	Air conditioning unit	NA	AMCA	IV	III	A
	Exhaust fan	NA	AMCA	IV	III	A
	Prefilter	NA	(j)	IV	III	A
	HEPA filter	NA	HSI-306/ MIL-F-51068C	IV	III	A
	Charcoal filter	NA	(j)	IV	NA	A
	Ductwork and dampers	NA	SMACNA	IV	III	A
	Piping and valves	NA	B31.1	IV	III	A

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
9.4.2.1 (Cont.)	Strainer	NA	(j)	IV	III	A
	Supports(l)					
	Counting room					
	Computer air conditioning units	NA	AMCA	IV	III	A
	Piping and valves	NA	B31.1	IV	III	A
	Strainer	NA	(j)	IV	III	A
	Ductwork and dampers	NA	SMACNA	IV	III	A
	Supports(l)					
9.4.2.2	Emergency Operation-- Auxiliary Building Ventilation Systems					
	Control room system					
	Prefilters	NA	(j)	II	I	A
	HEPA filters	NA	HSI-306/ MIL-F-51068C	II	I	A
	Charcoal filters	NA	CS-8T	II	I	A
	Cooling coils	C	III-3	II	I	A
	Electrical heating coils	NA	IEEE 323/344	II	I	A
	Fans and motors	NA	AMCA/IEEE 323/344	II	I	A
	Ductwork and dampers	NA	SMACNA	II	I	A
	Supports(l)					
	ESF switchgear room systems					
	Prefilters	NA	(j)	II	I	A
	Cooling coils	C	III-3	II	I	A
	Fans and motors	NA	AMCA/IEEE 323/344	II	I	A
	Ductwork and dampers	NA	SMACNA	II	I	A
	Supports(l)					
	Charging pump room and boric acid makeup pump room systems					
	Cooling coils	C	III-3	II	I	A
	Fans and motors	NA	AMCA/IEEE	II	I	A

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
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			323/344			
9.4.2.2 (Cont.)	Supports(l)					
	Battery room systems					
	Exhaust fans and motors	NA	AMCA	II	I	A
	Ductwork and dampers	NA	SMACNA	II	I	A
	Supports(l)					
	Chiller room systems					
	Prefilters	NA	(j)	II	I	A
	Fans and motors	NA	AMCA/IEEE 323/344	II	I	A
	Ductwork and dampers	NA	SMACNA	II	I	A
	Supports(l)					
	Emergency chilled water system					
	Chillers	C	III-3	II	I	A
	Pumps	C	III-3	II	I	A
	Pump motors	NA	IEEE 323/344	II	I	A
	Compression tanks	C	III-3	II	I	A
	Piping and valves	C	III-3	II	I	A
	Strainers	C	III-3	II	I	A
	Supports(l)					
9.4.3	Support Building Ventilation systems					
9.4.3.1	Fuel Handling Building Ventilation System					
	Normal supply and exhaust system					
	Prefilters	NA	(j)	III	II	F
	Fans and motors	NA	AMCA	III	II	F
	Ductwork and dampers	NA	SMACNA	III	II	F
	Supports(l)					
	Post-accident cleanup system					
	Prefilters	NA	(j)	II	I	F
	HEPA filters	NA	HSI-306/ MIL-F-51068C	II	I	F
	Charcoal filters	NA	CS-8T	II	I	F

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
9.4.3.1 (Cont.)	Cooling coils	C	III-3	II	I	F
	Fans and motors	NA	AMCA/IEEE 323/344	II	I	F
	Ductwork and dampers	NA	ORNL-65/SMAC NA	II	I	F
	Electric heating coils	NA	(j)	II	I	F
	Supports(l)					
	Pump room emergency cooling system					
	Cooling coils	C	III-3	II	I	F
	Fans and motors	NA	AMCA/IEEE 323/344	II	I	F
	Ductwork and dampers	NA	SMACNA	II	I	F
	Supports(l)					
9.4.3.2	Safety Equipment Building Ventilation System					
	Pump room normal cooling systems					
	Fan coil units	NA	AMCA/ARI	III	II	S
	Supports(l)					
	Heat exchanger room normal cooling systems					
	Fan coil units	NA	AMCA/ARI	III	II	S
	Ductwork and dampers	NA	SMACNA	III	II	S
	Supports(l)					
	Air conditioning equipment room normal cooling system					
	Fan coil units	NA	AMCA/ARI	III	II	S
	Ductwork and dampers	NA	SMACNA	III	II	S
	Supports(l)					
	Lobby area air conditioning system					
	Fan coil units	NA	AMCA/ARI	III	II	S
	Ductwork and dampers	NA	SMACNA	III	II	S
	Electric duct heaters	NA	(j)	III	II	S
	Supports(l)					

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UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
9.4.3.2 (Cont.)	Pump room emergency cooling systems					
	Cooling coils	C	III-3	II	I	S
	Fans and motors	NA	AMCA/IEEE 323/344	II	I	S
	Supports(l)					
9.4.3.3	Turbine Building Ventilation System					
	General area system					
	Supply air units	NA	AMCA	IV	III	T
	Transfer air units	NA	AMCA	IV	III	T
	Ductwork and dampers	NA	SMACNA	IV	III	T
	Supports(l)					
	Switchgear room and D6 battery (El. 7') room systems					
	Supply air units	NA	AMCA	IV	III	T
	Exhaust fans and motors	NA	AMCA	IV	III	T
	Ductwork and dampers	NA	SMACNA	IV	III	T
	Electric duct heaters	NA	(j)	IV	III	T
	Supports(l)					
	Lube oil room system					
	Supply air units	NA	AMCA	IV	III	T
	Exhaust fans and motors	NA	AMCA	IV	III	T
	Ductwork and dampers	NA	SMACNA	IV	III	T
	Supports(l)					
	Excitation--AVR room system					
	Air handling units	NA	AMCA	IV	III	T
	Air-cooled condensing units	NA	AMCA	IV	III	T
	Ductwork and dampers	NA	SMACNA	IV	III	T
	Supports(l)					
	Steam air ejector exhaust system					
	Exhaust filtration unit	NA	HSI-306/ MIL-F-51068C	III	II	T
	Piping and valves	NA	ANSI B31.1	III	II	T
	Supports(l)					

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
9.4.3.3 (Cont.)	Main generator isophase bus connection enclosure ventilation system					
	Exhaust fans and motors	NA	(j)	IV	III	T
	Ductwork	NA	SMACNA	IV	III	T
	Non-class 1E UPS area system					
	Air-handling unit	NA	AMCA	IV	III	T
	Air-cooled condensing unit	NA	AMCA	IV	III	T
	Ductwork and dampers	NA	SMACNA	IV	III	T
	Supports(l)					
	D7 Battery and Battery Charger Rooms (El. 56')					
	Supply Air Units	NA	AMCA	III	II	T
	Exhaust fans and motors	NA	AMCA	III	II	T
	Ductwork and dampers	NA	SMACNA	III	II	T
	Electric duct heaters	NA	(j)	III	II	T
	Supports(l)					
9.4.3.4	Diesel Generator Building Ventilation System					
	Normal ventilation system					
	Fans and motors	NA	AMCA	III	II	D
	Ductwork	NA	SMACNA	III	II	D
	Supports(l)					
	Emergency ventilation system					
	Emergency supply fans and motors	NA	AMCA/IEEE 323/334/382	II	I	D
	Ductwork	NA	SMACNA	II	I	D
	Supports(l)					
9.4.3.5	Penetration Building and Electric and Piping Tunnels Ventilation System					
	Penetration building system					
	Air conditioning and ventilation supply units	NA	AMCA/ARI	III	II	P
	Prefilters	NA	(j)	III	II	P
	Transfer fans	NA	AMCA	III	II	P
	Ductwork and dampers	NA	SMACNA	III	II	P

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
	Supports(l)					
	Electric and piping tunnel system					
	Ventilation supply units	NA	AMCA	III	II	All
	Exhaust fans	NA	AMCA	III	II	All
	Ductwork and dampers	NA	SMACNA	III	II	All
	Supports(l)					
9.4.3.6	Intake Structure Ventilation System (Emergency)					
	Prefilters	NA	(j)	II	I	IN
	Fans and motors	NA	AMCA/IEEE 323/344	II	I	IN
	Ductwork and dampers	NA	SMACNA	II	I	IN
	Supports(l)					
9.4.3.7	Auxiliary Feedwater Pump Room Ventilation System					
	Normal heating and ventilation system					
	Electrical unit heater	NA	(j)	III	II	TK
	Supports(l)					
	Emergency Ventilation System					
	Fans and motors	NA	AMCA/IEEE 323/344	II	I	TK
	Ductwork and dampers	NA	SMACNA	II	I	TK
	Supports(l)					
9.4.3.8	Safety Equipment Building Elevator Machine Room and Condensate Storage Tank Area Ventilation System					
	Safety Equipment Building Elevator Machine Room Ventilation System					
	Exhaust fan	NA	AMCA	III	II	S
	Supports(l)					
	Condensate Storage Tank Area Ventilation System					
	Electrical unit heater	NA	(j)	III	II	TK

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
	Supports(l)					
9.5.1	Fire Protection System					
	Detection system	NA	NFPA, (j)	IV-FPS	III	All
	Water System(ab)					
	Tanks	NA	NFPA/API 650	III-FPS	II	O
	Pumps and motors	NA	NFPA/NMR	III-FPS	II	O
	Piping and valves					
	Suppression system	NA	NFPA	III-FPS	II	All
	Containment penetration	B	III-2	II	I	C/P
	Other	NA	NFPA	IV-FPS	III(g)	All
	Supports(l)					
	Mobile fire trucks	NA	NFPA	III-FPS	I	O
	Fire water tankers	NA	NFPA	IV	III	O
	Demineralized water storage tank	NA	ASME-III	III-FPS	I	O
	Gaseous system (Halon)	NA	NFPA/VIII	III-FPS	II	A
	Gaseous system (CO ₂)					
	Tank, tank associated instruments and equipment, pilot solenoid cabinet, tank nozzle to associated tank isolation valve.	NA	NFPA/VIII	IV	III	IN/O
	Other	N/A	NFPA	III	II	T/O
	Standpipes and hose connections for safe shutdown equipment areas	NA	NFPA	III-FPS	I	A/F/P/C
	Fire Barrier					
	Rated doors, walls	NA	ACI-318, NFPA	III-FPS IV-FPS	II, III	A/C/D/F/MSI V/S/T/TK
	Penetration seals	NA	ASTM E119	III-FPS IV-FPS	II,III	A/C/D/F/MSI V/S/T/TK
	Penetration seals Condensate Storage Tank 2(3)T-120 wall enclosure seals below the flood line elevation 51'-2"	NA	ASTM E119	II	I	TK
	Cable penetration fire barriers	NA	ASTM E119	III-FPS	NA	A/C/D/F/MSI V/S/T/TK
	Fire resistant wrap	NA	NFPA/ASTM	III-FPS	II(g)	A/C/D/F/S/T/

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
			E119			TK
9.5.1 (Cont.)	Conduits and cable trays	NA	(j)	II(n) III-FPS	I(n) II(g)	All
	Fire dampers	NA	NFPA	III-FPS IV-FPS	II, III	A/C/D/F/S/T/ TK
	Fire proofing material for steel	NA	(j)	IV-FPS	III	All
	Portable fire extinguisher	NA	NFPA	IV-FPS	III	All
	Portable smoke removal system (blowers)	NA	(j)	IV-FPS	III	All
	Emergency breathing apparatus	NA	(j), OSHA	IV-FPS	NA	All
	Fluid diversion structure (RCP lube oil collection system)	NA	ANSI B31.1, ASME VIII, and AISC	III-FPS	II(ap)	C
9.5.2	Communications System					
	Emergency communication system	NA	FCC, (j)	IV-FPS	III	All
	Direct dedicated telephone lines	NA	FCC, (j)	IV-FPS	NA	A
	Sound powered phone system	NA	FCC, (j)	IV-FPS	III	A/D/O/P/S/T/ TK
	Emergency evacuation alarm	NA	IEEE 323/344	II(ao)	I	O/A
	Reservoir Thunderbolt Siren	NA	FCC, (j)	III	II	O
	Other	NA	FCC, (j)	IV	NA	A
9.5.3	Lighting Systems					
	Lighting components integral with control room ceiling	NA	(j)	III	II(g)	A
	Control room emergency lights	NA	(j)	III-FPS	II(g)	A
	Lighting system components outside the control room (in SC I structure)	NA	(j)	IV	III(g)	All
	8-hour emergency lights	NA	UL924, (j), IES	III-FPS IV-FPS	II/III	All
	Supports(l)	NA	(j)	IV	III	All
	Street lighting equipment	NA	(j)	IV	III	O
	Other	NA	(j)	IV	NA	All

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
9.5.4	Diesel Generator Fuel Oil Storage and Transfer System					
	Off-skid portion:					
	Tanks	NA	III-3	II	I	D/O
	Pumps and motors	NA	III-3/IEEE 323/344	II	I	O
	Piping and valves	NA	III-3	II	I	D/O
	Y-strainers	NA	III-3	II	I	O
	Supports	NA	ASME	II	I	D/O
	On-skid (or skid-mounted) portion:					
	Pumps	NA	(j)	II	I	D
	Piping and Valves	NA	B31.1(j)	II	I	D
	Filters and Strainers	NA	(j)	II	I	D
	Supports	NA	B31.1(j)	II	I	D
9.5.5	Diesel Generator Cooling Water System					
	Tanks and pressure relief valves	NA	III-3(ah)	II	I	D
	Pumps and motors	NA	(j)	II	I	D
	Piping and valves	NA	B31.1(j)	II	I	D
	Heat exchangers (radiators)	NA	VIII	II	I	D
	Supports	NA	B31.1(j)	II	I	D
9.5.6	Diesel Generator Starting Air System					
	Air receivers and pressure relief valves	NA	III-3(ah)	II	I	D
	Compressors	NA	(j)	III	II	D
	Piping and valves	NA	B31.1(j)	II	I	D
	Air dryers	NA	(j)	III	II	D
	Filters, intake	NA	(j)	III	II	D
	Supports	NA	B31.1(j)	II	I	D
9.5.7	Diesel Generator Lubrication System					
	Pumps and motors	NA	(j)	II	I	D

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UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
9.5.8	Piping and valves	NA	(j)	II	I	D
	Supports	NA	(j)	II	I	D
	Diesel Generator Combustion Air Intake and Exhaust					
	Intake air louvers	NA	(j)	II	I	D
	Ducts and Dampers	NA	SMACNA	II	I	D
	Exhaust silencer	NA	(j)	II	I	D
	Supports(l)					
10.	STEAM AND POWER CONVERSION SYSTEM					
10.2	Turbine-Generator					
	Turbine: High, low pressure	D	(j)	III	II	T
	Control and protective valve system	D	B31.1	III	II	T
	Turbine drains	D	B31.1	III	II	T
	Exhaust hood spray system	D	B31.1	III	II	T
	Lube oil system					
	Components	NA	VIII	III	II	T
	Piping	NA	B31.1	IV	III	T
	Electric turning gear	NA	(j)	IV	III	T
	Turbine control system (EHC, MHC, etc.)	NA	(j)	III	II	T
	Turbine control panel	NA	(j)	III	II	T
	Turbine supervisory system	NA	(j)	III	II	T
	Turbine protective devices	NA	(j)	III	II	T
	Turbine overspeed protection	NA	IEEE 279(m)	III	II	A/T
	Turbine monitoring equipment	NA	(j)	III	II	T
	Thermal insulating material	NA	(j)	IV	III	T
	Turbine support accessories	NA	(j)	III	II	T
	Generator	NA	(j)	III	II	T
	Seal oil system	NA	VIII	III	II	T
	Hydrogen coolers	NA	VIII	III	II	T
	Generator H ₂ /CO ₂ system	NA	(j)	III	II	T

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UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
10.2 (Cont.)	Stator water system	NA	VIII	III	II	T
	Exciter switchgear and voltage regulator	NA	(j)	III	II	T
	Exciter	NA	(j)	III	II	T
	Piping and valves	D	B31.1	III	II	
	Turbine gantry crane	NA	CMAA	III	II	T/O
	Supports(l)					
10.3	Main Steam Supply System					
	Steam traps	D	(j)	III	II	S/T/TK
	Reheaters	D	VIII	III	II	T
	Moisture separator-reheater drain tanks	D	VIII	III	II	T
	Main steam tube bundle drain tanks	D	VIII	III	II	T
	Bled steam tube bundle drain tanks	D	VIII	III	II	T
	Y-strainers	D	VIII	III	II	T
	Piping and valves					
	From steam generator through containment isolation valves	B	III-2(ae)	II(w)	I	C/MSIV
	To auxiliary feedwater pump turbine	C	III-3	II	I	MSIV/TK
	Other	D	B31.1	III	II	MSIV/T
	Supports(l)					
10.4.1	Main Condenser					
	Main condensers	D	HEI	III	II	T
	Vent and drain system	D	B31.1	III	II	T
	Piping and valves	D	B31.1	III	II	T
	Supports(l)					
10.4.2	Main Condenser Evacuation System					
	Seal water heat exchanger	D	VIII/HEI	III	II	T
	Air ejector condenser	D	VIII	III	II	T
	Air ejectors	D	VIII/HEI	III	II	T
	Condenser vacuum pump	D	VIII	III	II	T

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UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
10.4.3	Seal water pumps	D	(j)	III	II	T
	Separator tanks	D	(j)	III	II	T
	Supports(l)					
	Turbine Gland Sealing System					
	Gland steam condenser exhaust fan	D	(j)	III	II	T
	Gland steam condenser	D	VIII	III	II	T
	Piping and valves	D	B31.1	III	II	T
	Supports(l)					
	Turbine Bypass System					
	Piping and valves	D	B31.1	III	II	T
	Supports(l)					
10.4.4						
10.4.5	Circulating Water System					
	Pumps and motors	NA	(j)	III	II	IN
	Piping and valves	NA	B31.1	III	II	IN
	Expansion joints	NA	(j)	III	II	IN
	Strainers	NA	VIII	III	II	IN
	Traveling rakes and bar screens	NA	(j)	III	II	IN
	Gate #3	NA	(c)	II	I	IN
	Gates #1 and 2	NA	(c)	IV	III	IN
	Gates #4, 5, and 6	NA	(c)	III	II(g)	IN
	Gate operators and accessory equipment	NA	(c)	III	II(g)	IN
	Fish handling system	NA	(j)	IV	III	IN
	Supports(l)					
	Condensate Cleanup System (Full Flow Condensate Polishing Demineralizer)					
	Seal water heat exchangers	D	VIII	III	II	FFCPD
10.4.6	Tanks	D	VIII	III	II	FFCPD/O
	Pumps	D	(j)	III	II	FFCPD/O
	Polishers					
	Fines filter	NA	(j)	III	II	FFCPD

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UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
10.4.6 (Cont.)	Sample coolers	D	(j)	III	II	O
	Air blower package	NA	(j)	III	II	FFCPD
	Resin Hopper	NA	(j)	III	II	FFCPD
	Piping and valves	D	ANSI B31.1	III	II	FFCPD/O
	Supports(l)					
10.4.7	Condensate and Feedwater System					
	Tanks					
	Heater drain tanks	D	VIII	III	II	T
	Feedwater pump seal drain tanks	D	VIII	III	II	T
	Feedwater pump turbine drain tanks	D	VIII	III	II	T
	Pumps and motors					
	Condensate transfer pumps	NA	(j)	III	II	T
	Condensate pumps	D	(j)	III	II	T
	Heater drain pumps	D	(j)	III	II	T
	Feedwater pumps	D	(j)	III	II	T
	Feedwater pump turbine drain pumps	D	(j)	III	II	T
	Piping and valves					
	MFIVs through containment penetration to steam generator inlet	B	III-2(ar)	II	I	C/MSIV
	Other	D	B31.1	III	II	T
	Feedwater heaters	D	VIII	III	II	T
	Supports(l)					
	(Also refer to condensate storage system, Subsection 9.2.6)					
10.4.8	Steam Generator Blowdown System					
	Tanks					
	Blowdown flash tank	D	VIII	III	II	T
	Demineralizer acid storage tanks	NA	VIII	III	II	T
	Demineralizer caustic storage tanks	NA	VIII	III	II	T

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UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
10.4.8 (Cont.)	Pumps and motors					
	Acid metering pumps	NA	VIII	III	II	T
	Caustic metering pumps	NA	VIII	III	II	T
	Piping and valves					
	Steam generator through containment penetration and isolation valves	B	III-2	II	I	C/MSIV
	Other	D	B31.1	III	II	MSIV/T
	Blowdown heat exchanger	D	VIII	III	II	T
	Demineralizer hot water heat exchanger	D	VIII	III	II	T
	Mixed bed demineralizers	NA	VIII	III	II	T
	Neutralization system	NA	SDWQCB	IV	III	T
	Supports(I)					
10.4.9	Auxiliary Feedwater System					
	Pumps and prime movers					
	AFW pumps	C	III-3	II	I	TK
	Steam turbine	NA	API 611	II	I	TK
	Motors	NA	IEEE 323/344	II	I	TK
	Piping and valves					
	Containment isolation valves to steam generator inlet	B	III-2	II	I	C/MSIV
	Other	C(ac)	III-3(ac)	II	I	MSIV/TK
	Relief valves	C	III-3	II	I	SEB
	Supports(I)					
10.4.10	Turbine Plant Chemical Addition System					
	Tanks					
	Hydrazine feed tanks	NA	API 650	III	NA	T
	Amine feed tanks	NA	API 620	III	NA	T
	Boric Acid batching tanks	NA	(j)	IV	III	T
	Pumps and motors					
	Hydrazine feed pumps	NA	(j)	III	NA	T

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UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
10.4.10 (Cont.)	Amine feed pumps	NA	(j)	III	II	T
	Boric Acid High Capacity pumps	NA	(j)	IV	III	T
	Boric Acid Metering pumps	NA	(j)	IV	III	T
	Piping and valves	NA	B31.1	III	II	T
	Boric Acid Metering pump relief valves	NA	B31.1	IV	III	T
	Ti O ₂ Skid	NA	(j)	IV	NA	T
	Supports(l)					
11.	RADIOACTIVE WASTE MANAGEMENT SYSTEMS					
11.2	Liquid Waste Management System (Coolant Radwaste, Miscellaneous Liquid Waste, and Boric Acid Recycle Systems)					
	Tanks, atmospheric (except Primary Plant Makeup Storage Tank)	D	API 650	III	II	A
	Primary Plant Makeup Storage Tanks (also see Subsections 9.2.2 and 9.3.4)	D(ai)	API 620/650(aj)	II(ai)	I(ai)	A
	Tanks, pressure	D	VIII	III	II	C
	Pumps and motors	D	(j)	III	II	A
	Piping and valves					
	Containment penetration	B	III-2	II	I	C/P
	Other	D	B31.1	III	II	A/C/P
	Ion-exchangers	D	VIII	III	II	A
	Filters and strainers	D	VIII	III	II	A
	Tank heaters	NA	NEMA 4	III	II	A
	Gas strippers	D	VIII	III	II	A
	Evaporators					
	Process and cooling water side	D	III-3	III	II	A
	Steam side	NA	VIII	III	II	A
	Supports(l)					
	Multi-Purpose Handling	NA	UBC (1982)	IV	III(al)	Y/O

EQUIPMENT CLASSIFICATION ¹

UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
<hr/> Facility <hr/>						
11.3	Gaseous Waste Management System (Waste Gas System)					
	Tanks					
	Surge Tank	D	VIII	III	II	A
	Decay tanks	D	VIII	III	II	A
	Pumps and motors					
	Surge tank drain pump	D	(j)	III	II	A
	Compressor assembly					
	Compressor	D	VIII	III	II	A
	Motor	NA	(j)	III	II(g)	A
	Piping and valves					
	Containment penetration	B	III-2	II	I	C/P
	Waste gas surge tank drain	D	B31.1	III	II	A
	Waste gas discharge header	D	B31.1	III	II	A
	Vent gas collection header	D	B31.1	III	II	A
	Other	D	B31.1	III	II	A/C/P
	Y-strainer	D	VIII	III	II	A
	Supports(I)					
11.5	Process and Effluent Radiological Monitoring and Sample Systems					
	Containment airborne, fuel handling area vent airborne, and control room airborne radiation monitors	NA	IEEE 279/323/338/ 383(j)	II	I	A/F/P
	All other airborne radiation monitors	NA	(j)	III	II	A/T
	Liquid radiation monitors	D	VIII(j)	III	II(at)	A/P/T/Y
	Plant vent stack wide range radiation monitors	NA	IEEE 279/323/338/ 383(j)	II	I	P
	Main steam line monitor	NA	IEEE 279/323/338/ 383(j)	II	I	MSIV
	Condenser air ejector wide range radiation monitor	NA	IEEE 279/323/338/	II	I	T

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UFSAR Section	Principal Component	Quality Group	Principal Design and Construction Code or Standard	Quality Class	Seismic Category	Location (Bldg.)
			383(j)			
	Sample piping and tubing	NA	B31.1	III	II	T
	Normal sample lab isolation monitor	NA	IEEE 279/323/338/ 383(j)	III	II	A
12.	RADIATION PROTECTION					
12.3	Area Radiation Monitoring System					
	Area radiation monitors	NA	(j)	III	II	A/C/F/S
	High range in-containment monitors	NA	IEEE 279/323/338/ 383(j)	II	I	C
13.	CONDUCT OF OPERATIONS					
13.6	Industrial Security	NA	(aq)	IV(as)	(aq)	A/C/D/F/MSI V/O/ P/S/TK/Y

NOTES:

1. TABLE HEADINGS

Quality Group = A, B, C, D, (or NA, not applicable) as defined in Regulatory Guide 1.26, Quality Group Classifications and Standards for Water-, Steam-, and Radioactive Waste-Containing Components of Nuclear Power Plants (Quality Groups B, C, D) and in Title 10, Code of Federal Regulations, Part 50, Licensing of Production and Utilization Facilities, Section 50.55a (Quality Group A)

Principal Design and Construction Code or Standard:

AASHTO	=	American Association of State Highway and Transportation Officials
ACI 318	=	American Concrete Institute, Building Code Requirements for Reinforced Concrete (ACI 318-71)
AISC	=	Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings, February 12, 1969, and Supplements through December 8, 1971
AISI	=	American Iron and Steel Institute, Specification for the Design of Cold-Formed Steel Structural Members, 1968, and Design of Light Gage Cold-Formed Stainless Steel Structural Members, 1968
AMCA	=	Air Moving and Conditioning Association, Fan Performance and Sound Testing Requirements, AMCA 210.67 and 300
ANSI C37.30	=	American National Standards Institute, ANSI C37.30-1971, Definitions and Requirements for High Voltage Air Switches, Insulators, and Bus Supports
ANSI C57.12	=	American National Standards Institute, Transformers, Regulators and Reactors
ANSI N101.4	=	American National Standards Institute, ANSI N101.4-1972, Quality Assurance for Protective Coatings Applied to Nuclear Facilities
API 610	=	American Petroleum Institute, Centrifugal Pumps for General Refinery Services
API 611	=	American Petroleum Institute, General Purpose Steam Turbines for Refinery Service
API 620	=	American Petroleum Institute, Recommended Rules for Design and Construction of Large, Welded, Low-Pressure Storage Tanks
API 650	=	American Petroleum Institute, Welded Steel Tanks for Oil Storage, Atmospheric Tanks
ARI	=	Air Conditioning and Refrigeration Institute
ASME	=	American Society of Mechanical Engineers
ASME B&PV	=	American Society of Mechanical Engineers, Boiler and Pressure Vessel Code, Section III, Division 1, Nuclear Power Plant Components, and Section VIII.
III-1	=	ASME Code, Section III, Class 1
III-2	=	ASME Code, Section III, Class 2
III-3	=	ASME Code, Section III, Class 3
III-MC	=	ASME Code, Section III, Subsection NE, Class MC Components
III-NF	=	ASME Code, Section III, Subsection NF, Component Support
VIII	=	ASME Code, Section VIII, Division 1, Pressure Vessels with respect to supports for ASME Section III, Code Class 1, 2, and 3 items, all items ordered prior to the effective date of Subsection NF do not, as a rule, employ Subsection NF supports. Supports are provided, as

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required, by the appropriate subsection to which the item was ordered. ASME indicates that the support is considered as integral with the design and fabrication of the item, including piping. Thus, for those ASME Section III items ordered after the effective date of Subsection NF, the requirements for supports as defined in the code class of item apply.

AWS D1.1	=	American Welding Society, Welding in Building Construction (AWS D1.1-72)
BC-TOP-1	=	Bechtel Corporation Topical Report, BC-TOP-1, Containment Building Liner Plate Design Report, Revision 1, December 1972
BN-TOP-2	=	Bechtel Corporation Topical Report, BN-TOP-2, Design for Pipe Break Effects, Revision 2, May 1974
B9.1	=	ANSI B9.1, Safety Code for Mechanical Refrigeration
B31.1	=	ANSI B31.1-1973, Power Piping
CENPD-168	=	Combustion Engineering Topical Report, Design Basis Pipe Breaks for the Combustion Engineering Two Loop Reactor Coolant System, CENPD-168, Revision 1, September 1976
CMAA	=	Crane Manufacturers Association of America, Specification No. 70, Specifications for Electric Overhead Traveling Cranes, October 1971
CS-8T	=	American Association for Contamination Control, AACC CS-8T, Tentative Standard for High Efficiency Gas Phase Adsorber Cells, July 1972
49CFR	=	Code of Federal Regulations, Title 49 - Transportation, -Parts 170-178
D100	=	American Water Works Association, AWWA-3100, Standard for Steel Tanks, Standpipes, Reservoirs and Elevated Tanks for Water
FCC	=	Federal Communications Commission regulations
HEI	=	Heat Exchange Institute
HI	=	Hydraulic Institute, Standards for Centrifugal, Rotary, and Reciprocating Pumps
HSI-306	=	Health and Safety Information, United States Atomic Energy Commission, Revised Minimal Specification for the High-Efficiency Particulate Air Filter, Issue No. 306
IEEE 279	=	Institute of Electrical and Electronics Engineers, Criteria for Protection Systems for Nuclear Power Generating Stations, 1971
IEEE 308	=	Institute of Electrical and Electronics Engineers, Standard Criteria for Class 1 Electric Systems for Nuclear Power Generating Stations, 1971
IEEE 317	=	Institute of Electrical and Electronics Engineers, Standard for Electrical Penetration Assemblies in Containment Structures for Nuclear Fueled Power Generating Stations, September 1972
IEEE 323	=	Institute of Electrical and Electronics Engineers, General Guide for Qualifying Class 1 Electric Equipment for Nuclear Power Generating Stations, 1971
IEEE 334	=	Institute of Electrical and Electronics Engineers, Trial-Use Guide for Type Tests of Continuous-Duty Class I Motors Installed Inside the Containment of Nuclear Power Generating Stations, 1971
IEEE 338	=	Institute of Electrical and Electronics Engineers,

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Trial-Use Criteria for the Periodic Testing of Nuclear Power Generating Station Protection Systems, 1971

IEEE 344	=	Institute of Electrical and Electronics Engineers, Guide for Seismic Qualification of Class 1 Electric Equipment for Nuclear Power Generating Stations, 1971 or 1975
IEEE 379	=	Institute of Electrical and Electronics Engineers, Trial-Use Guide for the Application of the Single-Failure Criterion to Nuclear Power Generating Station Protection Systems, 1972
IEEE 382	=	Institute of Electrical and Electronics Engineers, Guide for Type Test of Class 1 Electric Valve Operators for Nuclear Power Generating Stations, 1972
IEEE 383	=	Institute of Electrical and Electronics Engineers, Standard for Type Test of Class 1 Electric Cables, Field Splices and Connections for Nuclear Power Generating Stations, 1974
IEEE 384	=	Institute of Electrical and Electronics Engineers, Trial-Use Standard Criteria for Separation of Class I Electric Equipment and Circuits, 1974
IEEE 387	=	Institute of Electrical and Electronics Engineers, Criteria for Diesel Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations, 1972
IES	=	Illuminating Engineering Society Lighting Handbook
MIL-F-51068C	=	Military Specification, MIL-F-51068C, Fire Resistant High Efficiency Particulate Air Filters
NEMA 4	=	National Electrical Manufacturers' Association, Watertight Electrical Terminal Box Type 4
NEMA SM-22	=	National Electrical Manufacturers' Association, NEMA SM-22, 1970, Single Stage Steam Turbine for Mechanical Drive Service
NEMA MG-1	=	National Electrical Manufacturers' Association, NEMA MG-1, 1972, Motors and Generators
NFPA	=	National Fire Protection Association
NML	=	Nuclear Mutual Limited, Property Loss Prevention Standards for Nuclear Generating Stations, June 1974
ORNL-65	=	Design, Construction and Testing of High Efficiency Air Filtration Systems for Nuclear Application, Oak Ridge National Laboratory (ORNL-NSIC-65), January 1970
SDWQCB	=	San Diego Water Quality Control Board
SMACNA	=	Sheet Metal and Air Conditioning Contractors National Association, Inc.
TEMA C, R	=	Tubular Exchanger Manufacturers Association, Class C, R
UBC	=	Uniform Building Code, 1970 Edition
UL	=	Underwriters Laboratory
UPC	=	Uniform Plumbing Code

Except as provided for in Section 50.55a of 10CFR50, or where a project position, has been developed as a result of NRC Regulatory Guides, the codes and/or standards listed above or in other paragraphs of the UFSAR are used as a guide to the design and construction practices for San Onofre Units 2 and 3. From time to time, design and construction practices may conflict with provisions of the referenced codes and/or standards. Such practices are acceptable provided that they are accomplished in accordance with approved project procedures.

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With respect to those codes and standards invoked by law in 10CFR50.55a (i.e., ASME III and IEEE 279), the provisions of 10CFR50.55a shall apply. 10CFR50.55a allows the use of editions of ASME III that become effective after the date of component order. Alternative design and construction practices allowed by Section III of the ASME code are also permitted (e.g., substitution of acceptable materials). The provision of 10CFR50.55a allowing use of later editions of the Code may also be followed for ASME Section III Code Classes 2 and 3 components.

With respect to project positions on codes and/or standards developed as a result of NRC Regulatory Guides, refer to UFSAR Appendix 3A.

Seismic Category:

I	=	defined by Regulatory Guide 1.29, Seismic Design Classifications
II, III	=	defined in UFSAR Paragraph 3.2.1

Quality Class = I, II, III, IV as defined in UFSAR Paragraph 3.2.3

Location:

A	=	Auxiliary building
C	=	Containment building
D	=	Diesel generator building
F	=	Fuel handling building
FFCPD	=	Full flow condensate polishing demineralizer area of the turbine building
IN	=	Intake structure
M	=	Mesa
MSIV	=	Secondary penetration area (MS & MFW penetration area/AFW doghouse)
O	=	Outdoors, onsite
P	=	Penetration area
S	=	Safety equipment building
T	=	Turbine building
TK	=	Tank building (RWST/CST/AFW Pump Bldg)
Y	=	Yard building(s)

2. FOOTNOTES

- a. See pages v through ix for definitions for classification of structures, components, and systems.
- b. ACI 318 ANSI N45.2.20 UBC ASTM AASHTO
- c. ACI 318 AISC AWS D1.1 UBC

All of the above apply as described in UFSAR Section 3.8, Design of Seismic Category I Structures.

- d. Penetration assemblies connected to the sleeves are listed on individual piping and electrical sections.
- e. Includes watertight doors.
- f. Includes partial-length and full-length control element assemblies.
- g. These components and associated supporting structures must be designed to retain structural integrity during and after a seismic event but do not have to retain operability for protection of public safety. The basic requirement is prevention of structural collapse and damage to equipment and structures required for protection of public safety. Refer to UFSAR Appendix 3A.1.29.3. On occasion, systems and

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components falling into this category may, for ease of construction, be designed, procured, and installed to Seismic Category I, Quality Class II standards. Such practice is optional, not a project requirement.

- h. See UFSAR Paragraph 5.4.1.4 for discussion of the reactor coolant pump flywheel integrity.
- i. Loss of cooling water to the reactor coolant pump motors caused by a failure of the Seismic Category II (Quality Group D) motor bearing oil systems or the air coolers may prevent normal continuous operation of the pumps. However, continuous operation of the pumps is not required during or following a DBE because they do not serve a safety function. Therefore, the specific recommendations of Regulatory Guides 1.26 and 1.29 are not applied to these pump auxiliaries.
- j. Manufacturer's Standards
- k. The pressure boundary of the Pressurizer heaters is built to Quality Class I, ASME Section III - Class I, and Group A Standards. The electrical portions of the heaters are Quality Class III and are fabricated in accordance with standards set by the manufacturers.
- l. All Seismic Category I piping and equipment shall have Seismic Category I supports. Supports for Seismic Category II and III piping, ducts, and equipment, whose failure could lead to damage to Seismic Category I piping and equipment, shall be designed and constructed so that the DBE would not cause such failure. For ASME Code piping, supports shall be constructed to ASME Code, Section III, Subsection NF requirements.
- m. For other applicable codes and standards, see UFSAR Section 7.1 and other corresponding UFSAR Chapter 7 sections referenced in this table.
- n. Engineering design and field installation shall meet Seismic Category I and Quality Class II criteria; however, the material may be commercial grade.
- o. ASME Code used for welder qualification only.
- p. The fuel transfer valves were fabricated in accordance with the requirements of ASME III-3 and therefore meet or exceed the ANSI B31.1 requirements characteristic of Quality Group D components as defined by Regulatory Guide 1.26. An N-stamp is not required and therefore not provided for this application.
- q. The containment polar crane and cask handling crane are designed to maintain structural integrity and limited operability during and after a DBE. The crane braking systems are required to remain functional to the extent necessary to prevent a load drop. Full operability of the cranes need not be maintained.
- r. These units are provided to lower the design temperature only in the two Non-Safety Related computer rooms during normal operation. Operation of the computer room fan coils does not affect the operation of either the control building normal ventilation system in Safety Related areas of the control building emergency ventilation system.
- s. These units are provided to lower the design temperature in the control element drive mechanism cabinet rooms during operation and shutdown periods. The fan coil units do not affect the operation of the radwaste building ventilation system.
- t. The requirements of NUREG-0737 Section II.F.2 are met by the instrumentation to detect inadequate core cooling made of the subcooled margin monitor (SMM), the core exit thermocouples (CET), and the heated junction thermocouples (HJTC).
- u. Chicago Bridge and Iron airlock and hatch door operating mechanism components identified as Type "D" materials on vendor assembly drawings, excluding "O" rings, gaskets and shaft seals, are Non-Safety Related, Quality Class III. These items are non-ASME Code, non-pressure retaining, and serve no Safety Related functions.

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- v. This equipment has been deactivated and physically isolated from operating plant systems. The principal design codes/standards listed reflect the original Safety Related design installation.
- w. The equipment which only serves the purpose of opening an MSIV is considered to be Quality Class III, whereas the equipment required to close an MSIV is considered to be Quality Class II.
- x. The indicated designation reflects the original plant design. The minimum design requirement consistent with Regulatory Guide 1.26, Rev. 2, is Quality Group C, ASME Section III, Class 3.
- y. Industrial standards (IEEE, ANSI, ASME, NFPA, UL, NEMA, ACI, etc).
- z. Although not addressed in a separate UFSAR section, annunciator windows in the control room are Seismic Category III, Quality Class IV.
- aa. Those components of the Personnel & Escape Locks operating mechanisms whose failure could not result in loss of the containment pressure boundary integrity may be considered Quality Class III.
- ab. Piping and components of fire water systems supporting Yard Buildings and facilities outside the Protected Area but connected to the plant fire water system shall be designated Quality Class III or IV as appropriate downstream of a Post Indicator Valve/ isolation valve.
- ac. Quality Class II instrument sensing lines and vent line extensions downstream of normally open root valves may be classified as B31.1 (Quality Group "D") in accordance with ISA-S67.02, Nuclear Safety Related Instrument Sensing Line Piping and Tubing Standards for Use in Nuclear Power Plants, 1980.
- ad. The CCW sides of the RCP Seal Heat Exchangers were originally constructed to meet the requirements of Quality Group A and Design and Construction Code III-1. However, the CCW sides of the RCP Seal Heat Exchangers are only required to be maintained to Quality Group D and Design and Construction Code B31.1.
- ae. The ADV actuator pneumatics and associated backup nitrogen system is ANSI B31.1. The accumulator tanks are ASME Boiler and Pressure Vessel Code Section VIII, Division 1. The accumulators are required to meet the code requirements of Quality Group D.
- af. The portion of the BNS which is Quality Group C is from the normally open isolation valve closest to the CCW surge tank, which serves as the code boundary between the ASME III, Class 3 surge tank and the ANSI B31.1 piping, downstream to the surge tank. The remainder of the BNS is Quality Group N/A.
- ag. United States Army Corps of Engineers' Specification for Waterstops, CRD C-513
- ah. The air receivers, cooling water expansion tanks, and associated pressure relief valves were originally procured and installed to ASME Section III, Class 3, and must be maintained accordingly. However, the principal design and construction code minimum requirement for these components is ASME Section VIII (Refer to Station Problem Report 900815, dated 10/30/90).
- ai. The Primary Plant Makeup Storage Tanks (PPMSTs) are dual purpose tanks providing make-up water to both the Component Cooling Water (CCW) System (System 1203, see UFSAR Section 9.2.2) and the Primary Plant Make-up (PPMU) system (System 1415, see UFSAR Section 11.2). The lower portion of the tank provides make-up for the CCW system (Quality Class II, Quality Group C). The upper portion of the tank provides make-up for the PPMU system (Quality Class III, Quality Group D).
- aj. The PPMSTs were upgraded to Quality Class II, Seismic Category I. The ASME Section III, Class 3 code reconciliation for these tanks is documented in the tank data report. Surveillance, maintenance, and repairs of these tanks shall be performed in accordance with ASME Section XI requirements.

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- ak. The CCW make-up system utilizes pumps originally purchased for the Containment Spray Chemical Addition System as ASME Section III, Class 2 (Quality Group B). The current application requires that the pumps be ASME Section III, Class 3 (Quality Group C).
- al. Originally, the Multi-Purpose Handling Facility (MPHF) was designed to Seismic Category III criteria. Calculation No. C-275-01, Rev. 0, was performed to qualify the MPHF for OBE loads. Load combinations and allowable stresses used are in accordance with Regulatory Guide 1.143, Rev. 1, Section 5.2.4.
- am. The pressure vessels for the Chemical and Volume Control System (CVCS) ion exchangers, purification filter, and the Volume Control Tank (VCT) are Quality Group B, constructed to the requirements of ASME B&PV Code, Section III, Division 1, Class 2, therefore are designated Quality Class II.
- an. The Vibration and Loose Parts Monitoring System is Quality Class IV, Seismic Category III with the following additional requirements: The loose parts monitoring sections of the system, which include the sensors, preamplifiers, signal cabling and the Alarm Module Unit, shall remain operational following all seismic events up to and including the OBE level.
- ao. Perimeter Paging System cabinet, 2/3L210, components, and speakers are Quality Class III, but the associated cable and raceway installation between Motor Control Center (MCC) BQ and cabinet 2/3L210 is Quality Class II. The Perimeter Paging System cabinet, 2/3L210, is located in the Auxiliary Control Building and is designed to Seismic Category I Criteria. The Quality Class II power supply breaker is isolated from the Quality Class III Perimeter Paging System components by an existing breaker and a fuse installed at MCC BQ1AB.
- ap. The system is designed to withstand a Safe Shutdown Earthquake (SSE) and also remain functional (i.e., maintain its structural integrity and remain leak-tight) following an SSE. The provisions of Regulatory Guide 1.29, Paragraph C.2, are applicable to the design of the system; refer to UFSAR Appendix 3A.1.29.3.
- aq. Proprietary Information withheld pursuant to 10CFR73.21. Refer to Physical Security Plan.

ar.

Equip. ID	Part Replaced	Code Requirement
3HV4052	Bonnet	ASME III Class 2
3HV9348	Gate and Segment Assembly	ASME III Class 2
2HV4052	Bonnet	ASME III Class 2
2HV9350	Gate and Segment Assembly	ASME III Class 1
3HV7512	Gate and Segment Assembly	ASME III Class 2

The above components had internal parts replaced which meet all required code requirements except for stamping and documentation. They were installed and procured in accordance with the guidance provided in Generic Letter 89-09

- as. Additional quality program requirements apply as defined in Topical Quality Assurance Manual, Chapter 8B.
- at. Radiation monitor detector for 2(3)RE-7819 shall be installed per Seismic Interaction II/I requirements.

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- au. The X-SAM Trolley is composed of commercial and augmented quality parts. The augmented quality parts are designated as “CI” (Critical Item) on assembly drawings issued for the trolley, i.e. Assembly Drawings SO123-209-1-D376 (Unit 2) and SO123-209-1-D23 (Unit 3) which shows parts such as rope, load block, bearings, sheaves, drum shafts, gearing, and brakes. All “CI” parts are also listed on Reference Document SO123-209-1-M414. The “CI” components must satisfy the design requirements of Specification SO123-209-01, Section 3.0 and are analogous to the components described in CMAA-70, Section 4.0.
- av. For the purpose of ASME Section XI, the secondary side of the SG is classified as ASME III, Class 2. However, the entire pressure boundary of the SG is designed, fabricated, and examined in accordance with the ASME III, Class 1 requirements.